DOCUMENT RESUME

ED 349 937 IR 015 668

AUTHOR	Bull, Glen L.; Harris, Judi
TITLE	HyperCard for Educators. An Introduction.
INSTITUTION	International Society for Technology in Education, Eugene, OR.
REPORT NO	ISBN-0-924667-92-3
PUB DATE	91
NOTE	114p.
AVAILABLE FROM	International Society for Technology in Education, 1787 Agate Street, Eugene, OR 97403-1923.
PUB TYPE	Guides - Classroom Use - Teaching Guides (For Teacher) (052)
EDRS PRICE	MF01 Plus Postage. PC Not Available from EDRS.
DESCRIPTORS	*Authoring Aids (Programing); *Computer Software Development; Elementary Secondary Education; *Hypermedia; Microcomputers; *Teacher Developed Materials
IDENTIFIERS	Apple Macintosh; *HyperCard

ABSTRACT

This guide is designed to provide a quick introduction to the basic elements of HyperCard for teachers who are familiar with other computer applications but may not have worked with hypermedia applications; previous familiarity with HyperCard or with Macintosh computers is not necessary. It is noted that HyperCard is a software construction toolkit that can be used to develop many types of class projects, ranging from interactive stories and dinosaur databases to hypermedia applications involving audio and video as well as computer text and graphics. The tutorial is presented in five chapters: (1) Electronic Notecards; (2) HyperCard Buttons; (3) HyperCard Fields; (4) HyperCard Backgrounds; and (5) HyperCard Stacks. An appendix contains information on version 2 of HyperCard. Extensive drawings illustrating computer screen displays accompany the text. (ALF)

****
* Reproductions supplied by EDRS are the best that can be made *
* from the original document. *
****

ED349937

U.S. DEPARTMENT OF EDUCATION
Office of Educational Research and Improvement
EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)
☐ This document has been reproduced as received from the person or organization originating it
☐ Minor changes have been made to improve reproduction quality
● Points of view or opinions stated in this document do not necessarily represent official OERI position or policy

HyperCard For Educators

An Introduction

Glen L. Bull and Judi Harris

IR015668

"PERMISSION TO REPRODUCE THIS MATERIAL IN OTHER THAN PAPER COPY HAS BEEN GRANTED BY
D. Moursund
TO THE EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)."

BEST COPY AVAILABLE

About the Authors

Glen Bull

Glen Bull is an associate professor in the Instructional Technology Program of the Curry School of Education at the University of Virginia. His interests include instructional computing areas such as Logo, telecommunications, and hypermedia. His most recent enterprise, the Gutenberg Project, involves exploration of instructional applications of hypermedia developed by teachers in a networked environment.

Judi Harris

Judi Harris works in the Department of Teacher Education at the University of Nebraska at Omaha as an assistant professor of educational technology. Her teaching, research, and service interests include developmental sequencing in interactive hypermedia materials design, Logo, computer-mediated educational telecommunications, the expressive qualities of children's computer-assisted artwork, and the restructuring of teacher education paradigms. Glen Bull was Judi's mentor as a doctoral student in instructional technology at the University of Virginia.

Editors
Ron Renchler, *International Society for Technology in Education*
Neal Strudler, *University of Nevada, Las Vegas*

Book Design and Production
Tamara Kidd, *International Society for Technology in Education*

Production Assistance
Lori Novak and Kim Ralston, *International Society for Technology in Education*

This book has been produced using *Aldus PageMaker®*.

© International Society for Technology in Education, 1991
1787 Agate Street, Eugene, Oregon 97403-1923
Phone 503/346-4414 Fax 503/346-5890
Order Desk 800/336-5191 Bitnet: ISTE@Oregon
CompuServe: 70014,2117 ISTE.Net: iste.office

ISBN 1-924667-92-3

BEST COPY AVAILABLE

HyperCard for Educators
An Introduction

Glen Bull and Judi Harris

© International Society for Technology in Education, 1991
ISBN 0-924667-92-3

Contents

Acknowledgments i

Conventions Used in This Book iii

Introduction 1

1. Electronic Notecards 5

2. HyperCard Buttons 23

3. HyperCard Fields 43

4. HyperCard Backgrounds 57

5. HyperCard Stacks 73

Appendix. Version 2 of HyperCard 89

Acknowledgments

We owe thanks to teachers in the Charlottesville schools, to teacher education classes in the Curry School of Education at the University of Virginia, and to Neal Strudler and his classes at the University of Nevada, Las Vegas. Many permutations of the activities and ideas in *HyperCard for Educators* were tried with them. The issue of whether buttons, fields, or backgrounds should be presented first, and in what manner, was discussed at length, and many combinations were tried by different classes. We thank them for their feedback, for the many suggestions for improvements, and for their patience. We would also like to thank Paula Cochran, who coauthored Chapter 5 on *HyperCard* stacks.

Conventions Used in This Book

In most cases, the terminology used in this book follows that used in the documentation accompanying the *HyperCard* program—*HyperCard User's Guide* and *HyperTalk Beginner's Guide: An Introduction to Scripting*.

References to specific *HyperCard* menu names, menu options, and dialog box settings appear in **boldface** type. References to specific *HyperCard* stacks, cards, tools, boxes, buttons, icons, and keyboard commands are Capitalized.

Material such as troubleshooting tips, technical notes, shortcuts, and important words or phrases appears in *italic* type.

The font used for text in screen shots and graphics is the *HyperCard* default font, Geneva. Words or phrases to be typed with the Paint Text tool also appear in Geneva font. Words or phrases to be typed in *HyperCard* fields or while scripting appear in `Courier` font.

Introduction

HyperCard quickly became one of the most popular applications on the Macintosh, in part because a copy of the program is provided with every Macintosh and in part because of the genius and foresight of *HyperCard*'s developer, Bill Atkinson. *HyperCard* was not the first hypermedia program, but it was the first widely used one. It has influenced the development of other programs, such as *LinkWay* and *ToolBook* for IBM computers, and *HyperStudio, HyperScreen*, and *TutorTech* for the Apple II.

Because *HyperCard* introduced a new genre of software, many found it difficult to classify at first. It has characteristics of a database, a word processor, a paint program, and a programming language. HyperTalk, the programming language provided with *HyperCard*, is modular and object-oriented. It is not necessary to understand what these terms mean in order to take advantage of *HyperCard*. The end result is that tasks that were previously difficult to implement on a computer are now much more accessible.

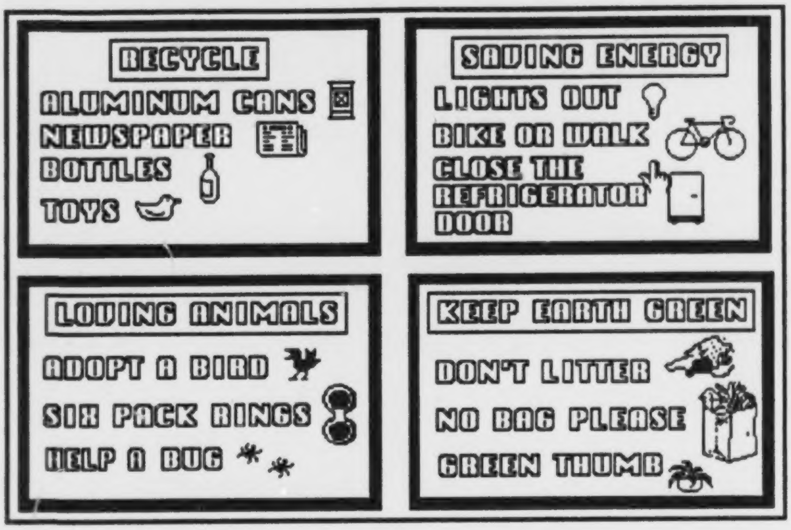
HyperCard for Educators is designed to provide a quick introduction to *HyperCard* for teachers who are familiar with other computer applications but who may not have worked with hypermedia applications. There are a number of books, such as Danny Goodman's *HyperCard Handbook*, that provide a comprehensive overview of *HyperCard*. Our intent is to provide a tutorial that quickly introduces the basic elements of *HyperCard*, thereby making more extensive texts comprehensible.

HyperCard for Educators is intended for teachers who have not previously used *HyperCard*, and who may not have used the Macintosh. Some familiarity with basic computer skills (such as insertion of disks) is assumed. If you have not used a Macintosh before, it is essential that you run the *Guided Tour of the Macintosh* (a tutorial provided with every Macintosh) before beginning the first lesson in *HyperCard for Educators.*

HyperCard in the Classroom

HyperCard is a software construction toolkit. The metaphor used for *HyperCard* is a stack of index cards that can be linked together. This format is well suited to development of interactive stories. Each card in the *HyperCard* stack can contain a page of the story, illustrated with graphics. An entire class can participate in developing the story with real index cards placed on a bulletin board. Push pins and strands of yarn can be used to indicate branching points in the story and links from one card to another.

HyperCard is well suited to development of many other types of class projects. One elementary teacher used *HyperCard* to develop a unit on ecology titled *Think Green: How Kids Can Save the Planet*. Each student in the class identified one way to conserve energy or save the environment. Each idea became a card in a *HyperCard* stack. The teacher then created a title card with a table of contents linked to all the other ideas.



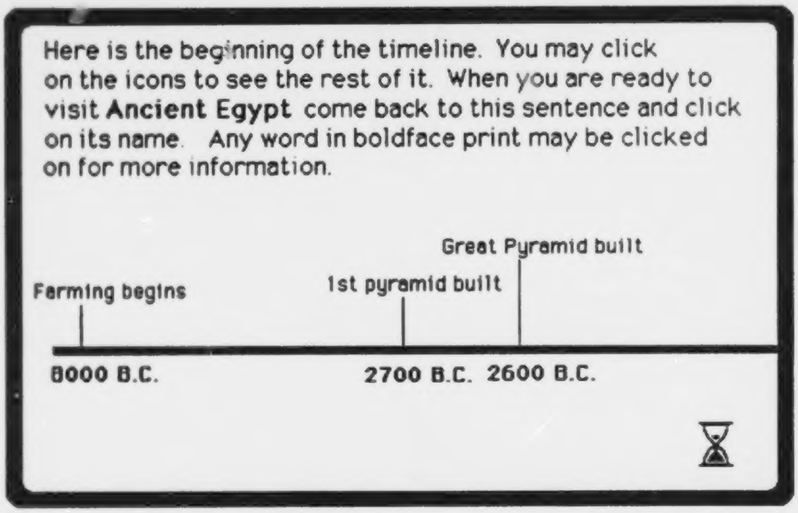
RECYCLE
ALUMINUM CANS
NEWSPAPER
BOTTLES
TOYS

SAVING ENERGY
LIGHTS OUT
BIKE OR WALK
CLOSE THE REFRIGERATOR DOOR

LOVING ANIMALS
ADOPT A BIRD
SIX PACK RINGS
HELP A BUG

KEEP EARTH GREEN
DON'T LITTER
NO BAG PLEASE
GREEN THUMB

HyperCard can be used in foreign language classes to create stories that are translated from English to Spanish (or some other language) with the click of a button. A dinosaur database is easily created for the lower grades, while several chemistry teachers have used *HyperCard* to create stacks on the periodic table. Information about each element is placed on a separate card, and the cards are then combined into an integrated stack. In the middle grades, one teacher created a *HyperCard* timeline with her class for a unit on Egyptian history. Information about each period of Egyptian history was placed on a separate card. A title card displaying the timeline was then linked to each of these periods.



Here is the beginning of the timeline. You may click on the icons to see the rest of it. When you are ready to visit **Ancient Egypt** come back to this sentence and click on its name. Any word in boldface print may be clicked on for more information.

The hypertext capabilities of *HyperCard* enable the teacher to create applications that allow a student to click on a key word in the text and instantly receive information from a glossary. *HyperCard* also lends itself to hypermedia applications involving audio and video as well as computer text and graphics. Every Macintosh has built-in speech synthesis capabilities that can be accessed though programs such as *HyperMacintalk* (available through user groups.)

Newer Macintoshes such as the Macintosh LC have built-in speech recording capability that permit real speech and sound to be recorded with a speech digitizer. The same capability can be added to other Macintoshes through the addition of sound digitizers such as *MacRecorder*. Video from videotape and cameras can be captured through video digitizers such as *MacVision*.

Some classes have developed electronic field trips by digitizing scenes from their area and incorporating them into *HyperCard* stacks. These electronic field trips are then exchanged with students from other areas, either by sending computer disks through the mail or by transmitting the *HyperCard* stacks over a computer network by using a modem. *HyperCard* is also an ideal user interface for control of a videodisc player. A videodisc can contain more than 50,000 slides or up to half an hour of video. Videodiscs developed for education, with accompanying *HyperCard* stacks, include videodiscs with thousands of paintings from the National Gallery of Art and other museums, thousands of images of plants and animals for biology classes, and every other conceivable topic.

Teachers using *HyperCard* can develop their own applications with their classes, use public domain educational stacks developed by others, or purchase commercial stacks. In all these cases, an understanding of *HyperCard* can be useful for the modification and customization of *HyperCard* stacks to meet individual needs.

Getting Started

HyperCard can be run in a limited fashion on a 1-megabyte Macintosh with two 800-kilobyte disk drives, but considerable disk swapping may be required if reasonably ambitious projects are attempted. It may also be necessary to remove some of the support files to run *HyperCard* in this configuration. For this reason we strongly recommend that you learn to use *HyperCard* on a Macintosh with a hard disk if at all possible. If it is necessary to run *HyperCard* without a hard disk, consult your Macintosh *HyperCard User's Guide* for installation details.

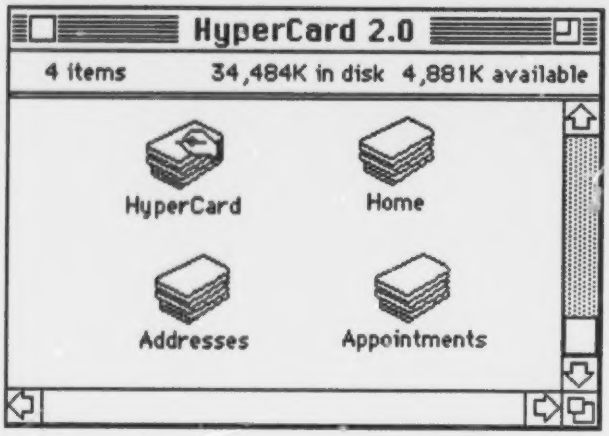
The activities in *HyperCard for Educators* assume that *HyperCard* has been installed correctly. *HyperCard* may have already been installed on your computer. If it has not, we suggest that you create a folder on your hard disk called *HyperCard*. (If you are not sure how to create a folder, run the *Guided Tour of the Macintosh* tutorial.)

HyperCard

If you are using Version 1 of *HyperCard*, copy the *HyperCard* program, the *HyperCard* Stacks folder, the Ideas Stacks folder, and the Help Stacks folder into the *HyperCard* folder on your hard disk. (These folders are found on the disks provided with Version 1 of the *HyperCard* program.)

Some of the activities in *HyperCard for Educators* make use of the Art Ideas stack in the Idea Stacks folder. If the Ideas Stacks folder is not in the same folder with *HyperCard*, the message "Where is Art Ideas?" may appear when you attempt to access this stack. This type of problem can be corrected by checking to be sure that all of the ancillary folders accompanying *HyperCard* are available.

If you are using Version 2 of *HyperCard*, copy the following files into the *HyperCard* folder: *HyperCard*, the Home Card, the Addresses stack, and the Appointments stack. If you are using this version, you may also wish to review the material on Version 2 in the Appendix.



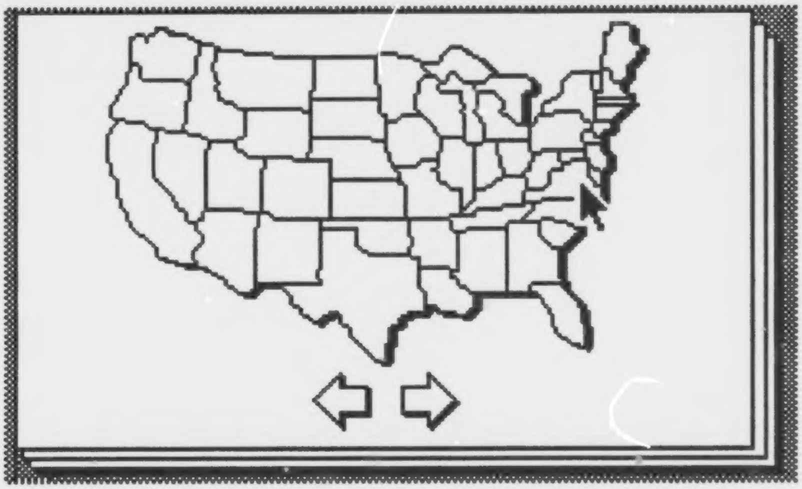
HyperCard 2.0

4 items 34,484K in disk 4,881K available

HyperCard
Home
Addresses
Appointments

Chapter 1. Electronic Note Cards

HyperCard is a Macintosh application developed by Bill Atkinson. It is based on the metaphor of electronic notecards on the computer screen and can be used to link different cards together. For example, one card might contain a picture of the United States.



Placing the cursor on a state and clicking the mouse button could then take the user to a second card with a more detailed drawing of the state. In a book, the user typically reads the pages in order. In *HyperCard*, it is possible to create links that connect any card to any other card.

The term *hypermedia* is sometimes used to describe the capability to go from any location to any other location within a medium. *HyperCard* popularized the concept of hypermedia applications on microcomputers, in part because a copy is provided with every Macintosh, just as a copy of BASIC is provided with Apple II and IBM computers.

HyperCard combines elements of many other kinds of programs. It incorporates the capabilities of text processing, paint and graphics programs, and databases; includes a programming language called HyperTalk; and provides interfaces to control videodisc players, scanners, video digitizers, and audio digitizers.

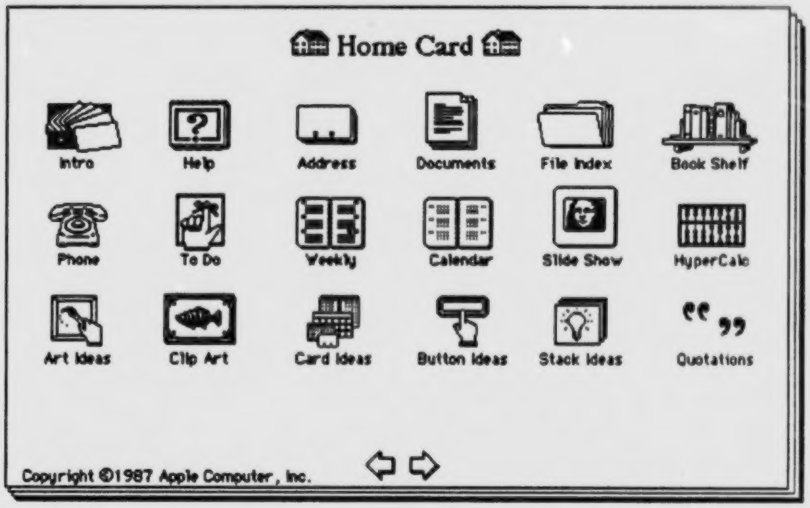
Hypermedia applications take advantage of the medium of computing to combine technologies in new ways. For example, one program developed with *HyperCard* presents the pages of an anatomical text on the screen of the computer. If a medical student selects an unfamiliar term, such as *corpus callosum*, a videodisc player controlled by the computer presents a picture of that anatomical structure.

Starting the Program

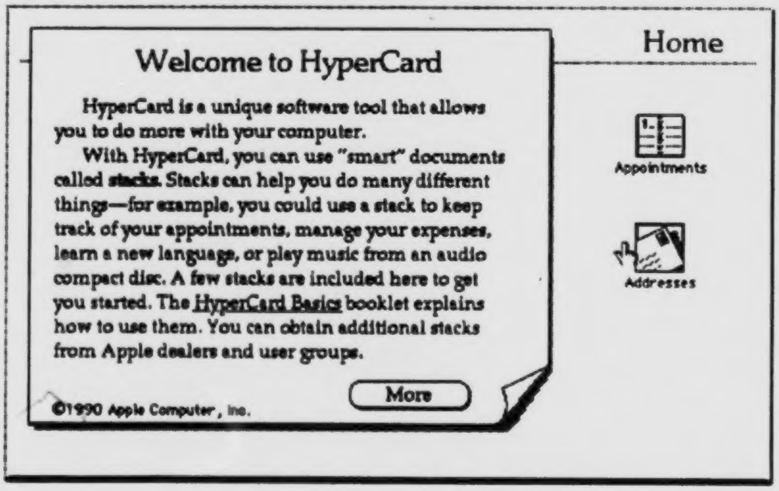
A Macintosh with 1 megabyte of memory is needed to run *HyperCard*. If you have not used a Macintosh computer before, we suggest that you run the *Guided Tour of the Macintosh* disk first. It will teach you about the conventions of using a mouse, such as "dragging" and "clicking." Once you are familiar with Macintosh conventions, you will be ready to run *HyperCard*. You can start *HyperCard* by double-clicking on the *HyperCard* icon:

HyperCard

HyperCard is based on the metaphor of a series of 3 x 5 inch index cards. When you first run *HyperCard*, the Home Card will appear. Clicking on any of the pictures, or "icons" as they are called in Macintosh terminology, will run a *HyperCard* program. Defer exploration of these sample programs until you have completed the introduction to *HyperCard* in this first lesson. If you would like to explore *HyperCard* afterwards, you can click on the Intro icon in the upper left corner of the Home Card. (You can return to the Home Card at any time by selecting the **Home** option from the **Go** menu at the top of the *HyperCard* screen.) The illustration below shows some of the icons on the Home Card found in Version 1 of *HyperCard*.


Home Card
Intro
Help
Address
Documents
File Index
Book Shelf
Phone
To Do
Weekly
Calendar
Slide Show
HyperCalc
Art Ideas
Clip Art
Card Ideas
Button Ideas
Stack Ideas
Quotations
Copyright ©1987 Apple Computer, Inc.

If your Home Card is different, you may have Version 2 of *HyperCard*, which has all the capabilities of Version 1 as well as some additional features. One variation of the Home Card provided with Version 2 of *HyperCard* looks like the card shown below.


Home
Appointments
Addresses
More

Welcome to HyperCard

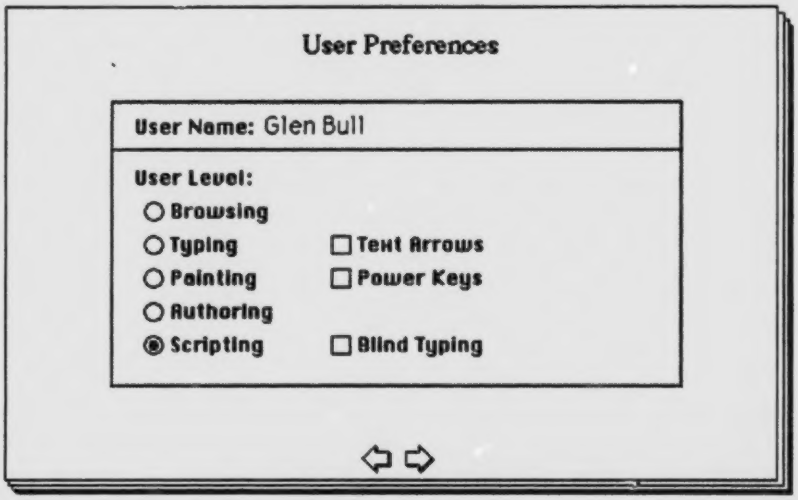
HyperCard is a unique software tool that allows you to do more with your computer.

With HyperCard, you can use "smart" documents called **stacks**. Stacks can help you do many different things—for example, you could use a stack to keep track of your appointments, manage your expenses, learn a new language, or play music from an audio compact disc. A few stacks are included here to get you started. The HyperCard Basics booklet explains how to use them. You can obtain additional stacks from Apple dealers and user groups.

©1990 Apple Computer, Inc.

Setting the User Level in HyperCard 1.0

The Home Card is the top card on a deck of index cards. You can move to other cards in the deck of cards by pressing the Arrow keys on the keyboard. Press the Left Arrow key to go to the User Preferences card, which allows you to set the User Level. You would like to be able to access the **Scripting** level, which will allow you to write *HyperCard* programs. If you are using Version 1 of *HyperCard*, the User Preferences card will look like the card shown below. If the User Level is not already set to **Scripting**, click on the button beside **Scripting** as shown below. Depending upon the version of *HyperCard* you are using, check boxes for text arrows, power keys, and blind typing may also be shown. Make sure that these options are not checked at this time.



User Preferences

User Name: Glen Bull

User Level:

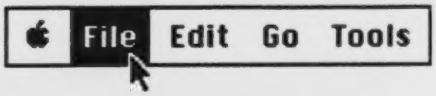
○ Browsing
○ Typing ☐ Text Arrows
○ Painting ☐ Power Keys
○ Authoring
● Scripting ☐ Blind Typing

Once the User Level is set to **Scripting**, click the Right Arrow to return to the Home Card.

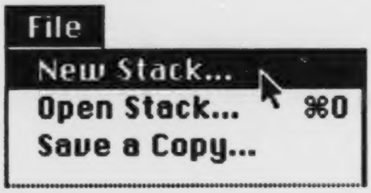
Setting the User Level in HyperCard 2.0

If you are using Version 2 of *HyperCard*, the User Preferences card has a somewhat different appearance. In the version of *HyperCard* 2.0 that is currently supplied (or "bundled") with new Macintosh computers, three of the User Levels (**Painting, Authoring, and Scripting**) may appear to be missing. However, it is possible to set the User Level so that all five levels are available to the user. Consult the directions in the section entitled "Setting the User Level for the Bundled Version of HyperCard 2.0" in the Appendix to learn how to set the User Level to **Scripting** in this version.

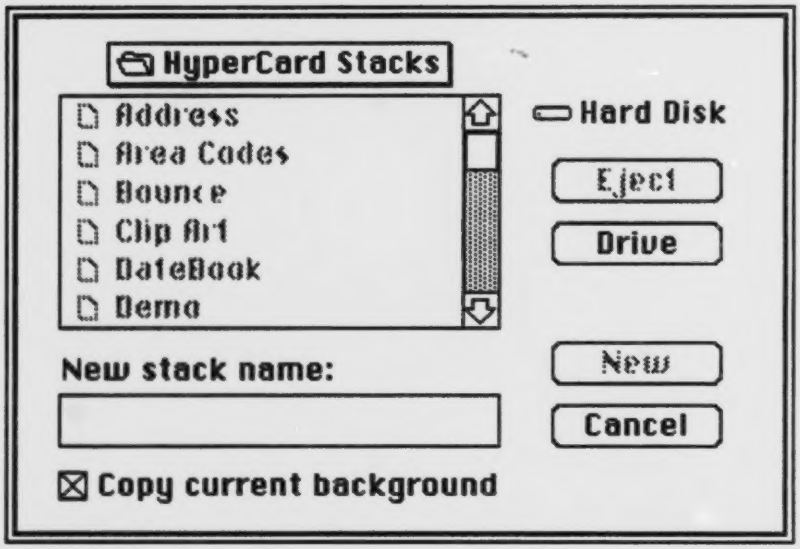
Creating a New Stack


File
Edit
Go
Tools

If you place the mouse pointer on the **File** option of the Menu bar at the top of the screen and hold the mouse button down, a menu of various **File** options should appear. While you continue to hold the mouse button down, drag the mouse pointer downward until the **New Stack** option is highlighted, as shown below.


File
New Stack...
Open Stack... ⌘O
Save a Copy...

If you release the mouse button while the **New Stack** option is highlighted, a dialog box will appear. The dialog box shown below is the one that appears in Version 1 of *HyperCard*. Since Version 2 has additional capabilities, more options will appear in the dialog box for that version. The dialog box below shows that the stack you are about to create will be saved on the hard disk.


HyperCard Stacks
Address
Area Codes
Bounce
Clip Art
DateBook
Demo
Hard Disk
Eject
Drive
New stack name:
New
Cancel
☒ Copy current background

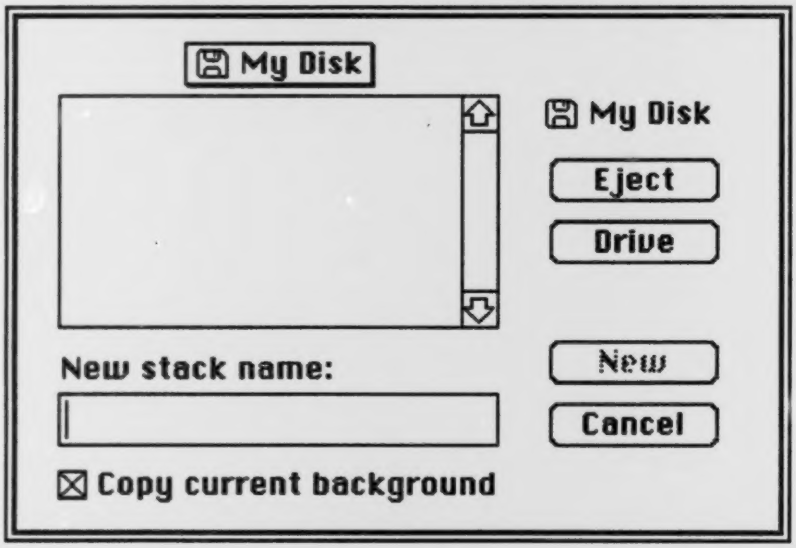
If the Macintosh you are using is your personal microcomputer, that is fine. However, if you are using a public microcomputer, you will want to take your work with you when you are finished. To do this, you will need to save your work on your own disk.

☐ First, insert your Macintosh disk in the disk drive. Although it may sound like a commonsense precaution, be sure that another disk is not already in the disk drive before you attempt to insert your disk. (If you have not used a Macintosh before, be sure to go through the *Guided Tour of the Macintosh* tutorial provided with each Macintosh computer.)

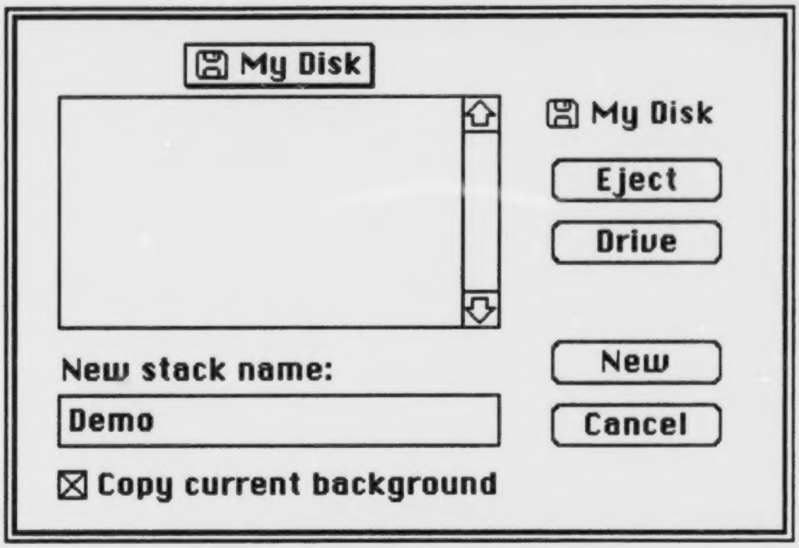
If your disk has not been initialized in the Macintosh format, the Macintosh will ask you if you wish to initialize it when you insert it. Be sure that the disk has not previously been formatted in an IBM or Apple II format before proceeding, because the initializing process will erase the disk. If you have not initialized a Macintosh disk before, follow the instructions in the *Macintosh User's Guide*.

☐ After inserting your disk (if it was not already in the disk drive), click on **Drive** in the New Stack dialog box to change drives before creating the new stack.

Each time you click the **Drive** option, the Macintosh will rotate to a new disk. Stop when the name of your disk is visible in the upper right corner of the dialog box.



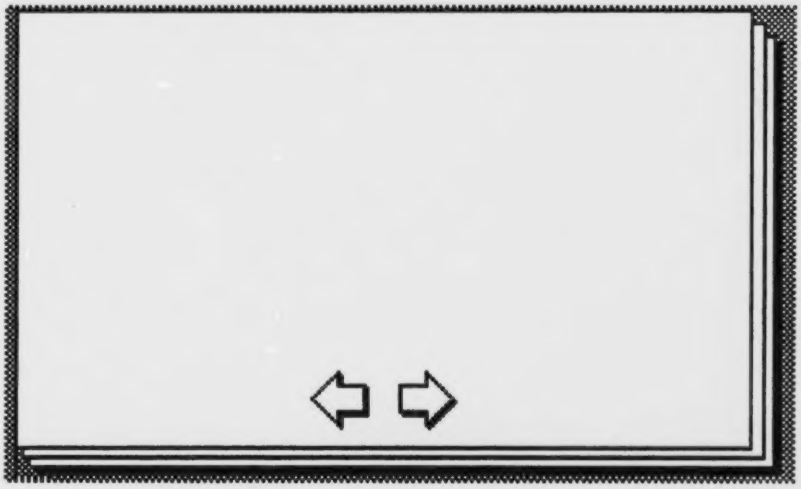
☐ Type in the name of a new *HyperCard* stack that you will use for this lesson. (Type the name in the **New stack name** box. We named our stack "Demo," but you can choose any file name that you like for yours.)



New stack name:
Demo

☒ Copy current background

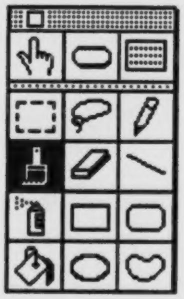
☐ Once you have typed in the name of your new stack, as shown above, click on the New button in the dialog box to create a new *HyperCard* stack. This will create a new stack of electronic cards on the drive named in the dialog box, and you will see the stack as shown below. (If you are using Version 2 of *HyperCard*, the arrow and card outlines will not be present when your new stack appears.)



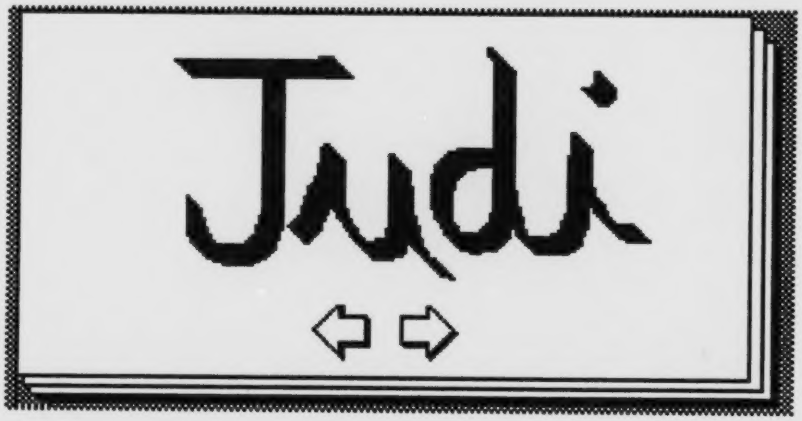
The Paint Tools

One of the options on the Menu bar at the top of the screen is **Tools**. If you place the mouse pointer on the **Tools** option and press the mouse button, the Tools palette will appear. While you continue to hold down the mouse button, drag the mouse pointer to the middle of the screen. The Tools palette will follow the mouse pointer. Position the Tools palette in a convenient location at one side of the screen. When you release the mouse button, the palette will stay where you have placed it. You can reposition the Tools palette by placing the mouse pointer on the bar across the top, known as the Title bar, and dragging it to another location. You can put away the Tools palette by clicking the Close Box at the far left side of the Title bar. The Title bar and Close Box features work in the same way for any window in any Macintosh program. This consistency is an important feature of Macintosh programs.

All the tools below the first row of the Tools palette are "painting" tools. For example, the highlighted tool that looks like a paintbrush is called the Brush tool. The tool beside the brush is an eraser, while a spray can and a paint bucket are found just below the Brush tool.



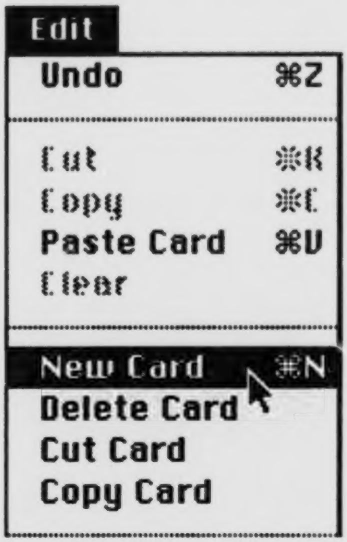
Place the mouse pointer on the Brush tool and click once to select it. The Brush tool will be highlighted as shown in the previous illustration. By moving the mouse pointer across the screen, you can draw with the Brush tool just as you might with an actual paint brush. Paint flows if you hold down the mouse button as you move the brush across the screen. Try writing your name with the paint brush.



If you like, you can select a different brush shape by double-clicking on the icon of the Brush tool in the Tools palette.

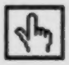
Creating a New Card

One of the advantages of electronic notecards is that you can create as many as you want without destroying any trees. Make a new card now. Go to the Edit menu, and select the New Card option.



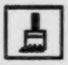
A new blank card should appear. A new card is automatically inserted after your current card.

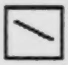
If you would like to go back to the previous card, you can use the arrows at the bottom of the notecard, or the Arrow keys on the keyboard. To use the arrows at the bottom of the notecard, you must use the finger of the Browse tool. If you have previously selected a different tool, you will need to choose the Browse tool (which looks like a hand) before clicking the arrows on the card.

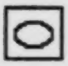


Use the Browse tool to click on the Right and Left Arrows at the bottom of the card. This will allow you to move through the cards in your stack.

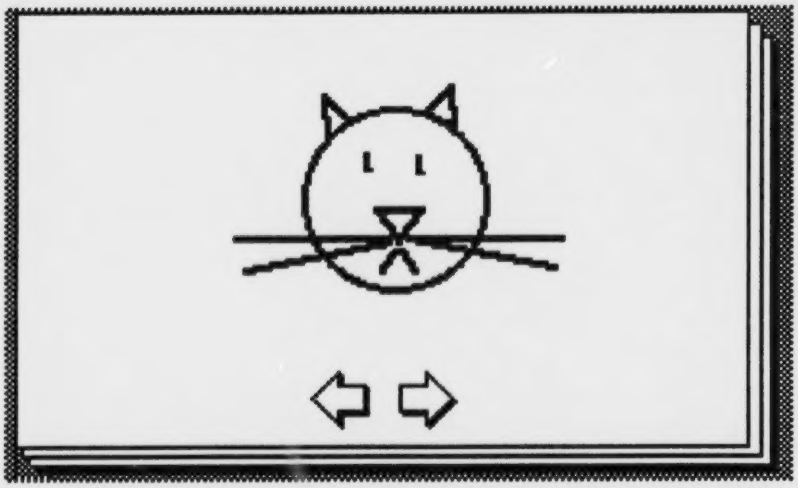
Return to your new card and use the Brush tool, the Line tool, and the Oval tool to sketch out a cat's face on the blank note card you have just created. The icons for these tools look like this:







The exact shape of the cat's face is not important. Our cat looked like this:

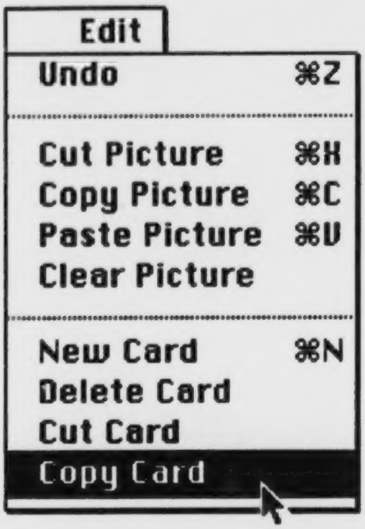


To create the oval face of the cat, click on the icon for the Oval tool. Hold the mouse button down as you drag the mouse pointer across the screen to form an oval. To create a line that produces the cat's whiskers, select the Line tool. Then hold the mouse button down as you drag the mouse pointer across the screen to form a line. Use the Brush tool to draw the cat's eyes, nose, and mouth. If you make a mistake, you can reverse the last action with the **Undo** option. (**Undo** is found under the **Edit** menu on the Menu bar at the top of the screen.) You needn't worry about the precision of the sketch; the basic shape is all that is necessary.

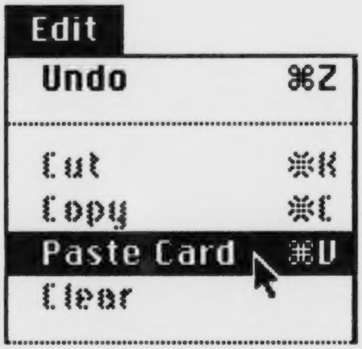
As you create your cat, you may wish to experiment with other Paint tools in addition to the Line, Brush, and Oval tools. For example, the Pencil tool can be used create a fine line, and the Spray tool, as its name implies, creates paint that looks as though it was being sprayed from a paint can.

Copying a Card

Next we will use *HyperCard* to turn our cat into a Cheshire Cat. The Cheshire Cat, you may remember, was the cat in *Alice in Wonderland* that gradually faded away until only its smile was left. To create this cat, we'll first make a copy of the card. Select the **Copy Card** option under the **Edit** menu.


Edit
Undo ⌘Z
Cut Picture ⌘X
Copy Picture ⌘C
Paste Picture ⌘V
Clear Picture
New Card ⌘N
Delete Card
Cut Card
Copy Card

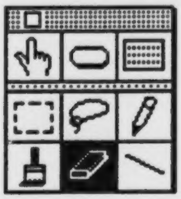
Once you select the **Copy Card** function on the **Edit** menu and release the mouse button, the **Paste Card** option should be enabled. Now that a copy of the card is available in the memory of the computer, use the **Paste Card** function to create a copy of the note card with the cat image.


Edit
Undo ⌘Z
Cut ⌘X
Copy ⌘C
Paste Card ⌘V
Clear

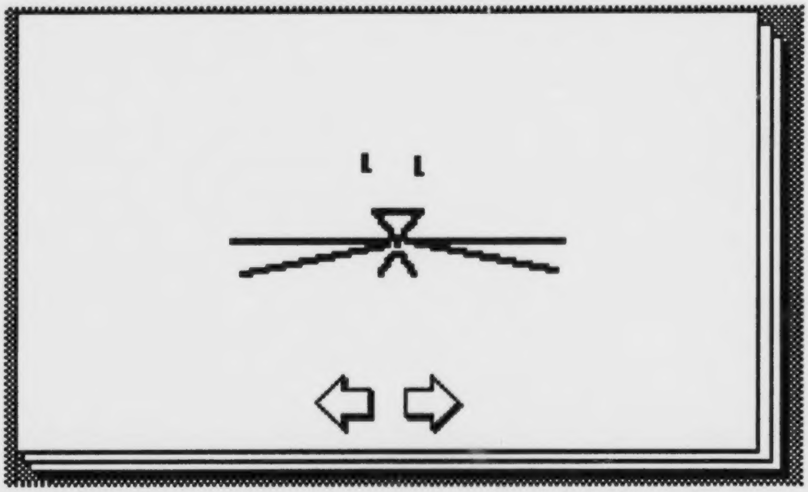
Paste your card now. The **Paste Card** function created a copy of the card with the cat. Since it is an exact copy, it may not initially be apparent that you now have identical cards with identical cats. However, if you select the Browse tool (the hand), and then select the Card Info option under the **Objects** menu, you will see that you are now in card three of three. The first card in the stack of cards is the one you created with your name on it. The next two are the cards with identical cats. *(Tip: The Paste Card function always pastes the new card after the current card.)*

The Eraser Tool

Once you have verified that you now have two note cards with cats (both identical), you can alter the second to create a Cheshire cat. Select the Eraser tool to begin the alterations.



Gradually erase the outline until only the basic features of the cat remain. You will now have two "cat" cards in your stack of electronic notecards—one with the complete cat and a second card in which the cat has begun to disappear.



Use the Left Arrow keys on the keyboard to go back to the complete cat. Then use the Right Arrow to return to the disappearing cat. If you like, you can use **Copy Card** and **Paste Card** to make more cards. Remove additional features of the cat on these cards until only its smile remains. As you flip from card to card using the Arrow keys on the keyboard, the cat will appear to gradually fade away.

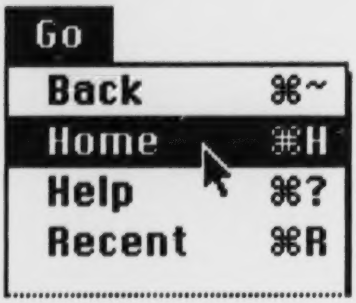
Prior to animated films, simple forms of animation were created by arranging successive images on cards or pages of a book. Flip books may still be found in toy stores and Cracker Jacks boxes today. An electronic flip book is a good beginning *HyperCard* project.

Using Predrawn Clip Art

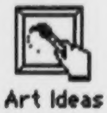
Those with limited artistic talent need not despair. A wealth of predrawn illustrations, often called "clip art," is available for *HyperCard*. Much of this art is available as shareware or sold in the form of commercial libraries. A sampler is included with Version 1 of *HyperCard* to provide a glimpse of the possibilities.

The original form of Version 2 supplied by Apple with Macintoshes does not include sample clip art files. It is possible to upgrade Version 2 to obtain sample clip art files and other tools and sample files as well. Your Apple dealer can provide details. You can also obtain public domain clip art from local user groups.

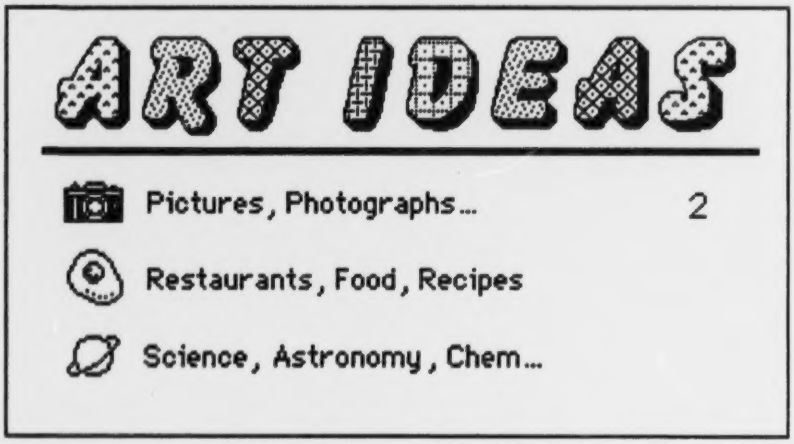
If you are using Version 1 of *HyperCard*, you can access the sample clip art by first returning to the Home Card. You can do this by selecting **Go** from the Menu bar at the top of the *HyperCard* screen, and then choosing **Home**.


Go
Back ⌘~
Home ⌘H
Help ⌘?
Recent ⌘R

Once you are back at the Home Card, select the Art Ideas button. (Your Tools palette may be covering this button. If it is, move the Tools palette over.)

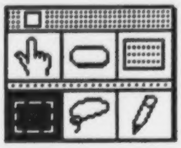


This button will take you to an Art Ideas index. Use the Right Arrow key to go to the second card in the index. Once you are at the second page of the index, select the Restaurants, Food, Recipes option.

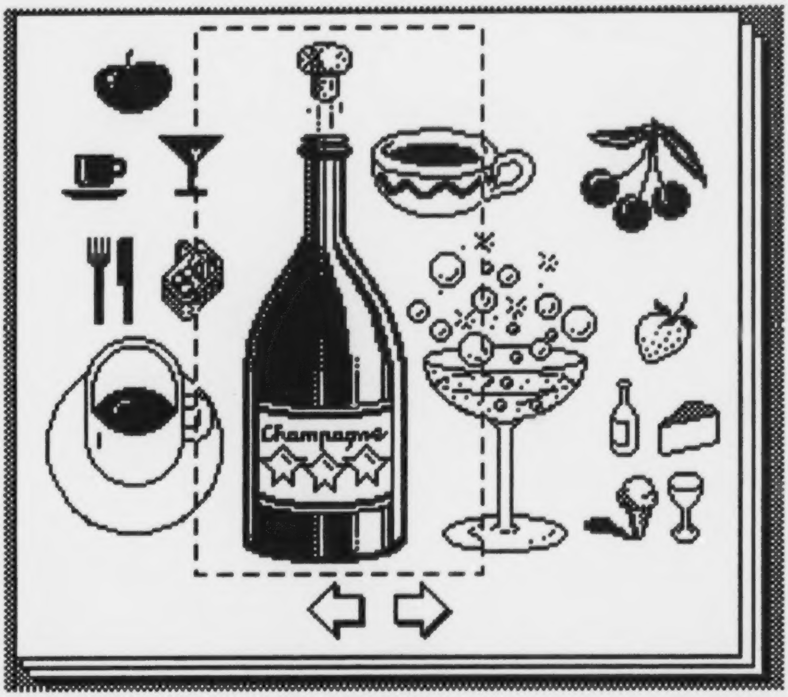

ART IDEAS
Pictures, Photographs...
2
Restaurants, Food, Recipes
Science, Astronomy, Chem...

The Food icon takes you to a card with different items of food pictured. Click on this button now.

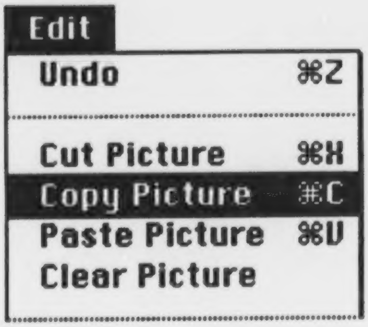
Our objective is to make a copy of the champagne bottle to take back to our own stack. To do this, first choose the Select tool, located just below the Browse tool on the Tools palette.



Now position the crosshair of the cursor at the lower left side of the champagne bottle. Hold down the mouse button and drag the cursor diagonally across the champagne bottle in an upward direction. When you release the mouse button, a swirling rectangle of dashed lines should surround the champagne bottle. The rectangle will also enclose some of the champagne glass beside the bottle, but don't worry about this. It can be erased after we have brought the champagne bottle back to our own stack. If you don't get all of the bottle on the first try, reposition the crosshair and try again.

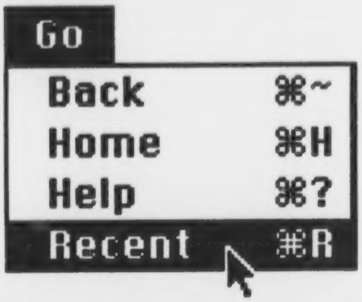


Once you have selected the champagne bottle, the next step is to copy it to the Clipboard. The Macintosh Clipboard is a general purpose tool that can be used to copy a picture from any Macintosh program to any other Macintosh program. Pictures are stored on the Clipboard while you are in the process of going from one program to another. To copy the champagne bottle, go to the **Edit** option on the Menu bar at the top of the screen, and select **Copy Picture.** (Be sure to select *Copy* **Picture** and not *Cut* **Picture** or you will erase the picture from the Home Stack.)

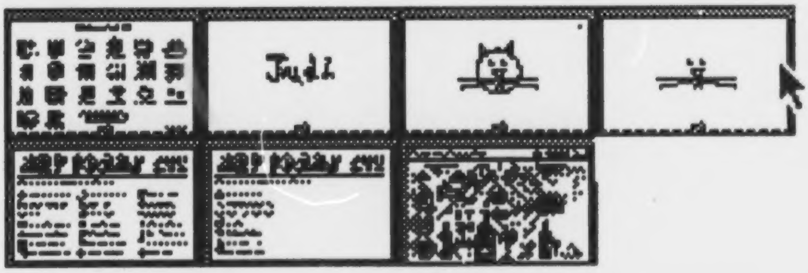


Stack Navigation

Now that the picture of the champagne bottle has been copied to the Clipboard, you will want to go back to your own stack and paste the picture onto one of your cards. There are several ways in which you can return from the Home Stack to your own stack. One way is to use the **Recent** option under the Go menu. To use this method, first select the Go option on the Menu bar at the top of the screen, and then select **Recent**.



Once you select the **Recent** option, a pictogram appears of the cards where you have been most recently. You may be able to recognize some of the cards from your stack. For example, the picture of the cat you made earlier may be recognizable. Place the cursor on this card and click the mouse button.

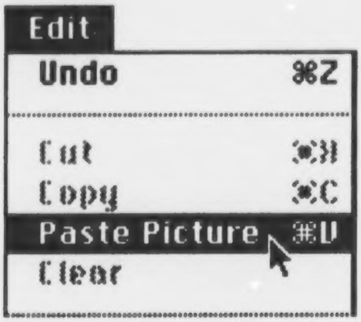


Selecting the pictogram of the card takes you to that card. (*Note: The cards in the pictograms found in the Recent option under the Go menu do not affect the cards in your stack. They simply show you where you have been in the past as you navigated through different cards and stacks.*)

BEST COPY AVAILABLE

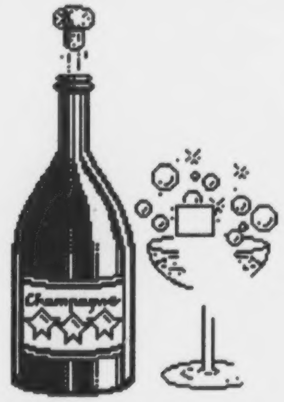
Pasting a Clip Art Picture Into Your Stack

Once you are back in your own stack, make a new card so you can paste the champagne bottle onto it. Go to the **Edit** menu and select the **New Card** option. Once you have a fresh, blank card, you are ready to paste the champagne bottle from the Clipboard onto the new card. (*Important Note: First be sure that you have selected the Browse tool on the Tools palette.*) Then go to the **Edit** option on the Menu bar, and select **Paste Picture**.



This action will paste the champagne bottle onto the new card of your stack. When the champagne bottle appears, it will still be surrounded by the swirling dashed line of the Select tool. If you place the cursor in the middle of the champagne bottle and hold the mouse button down, you can move the bottle to any location on the card. Once you are satisfied with the positioning of the bottle, move the cursor outside of the dashed line of the rectangle that surrounds the bottle and click the mouse button once. This will fix the picture in its new position.

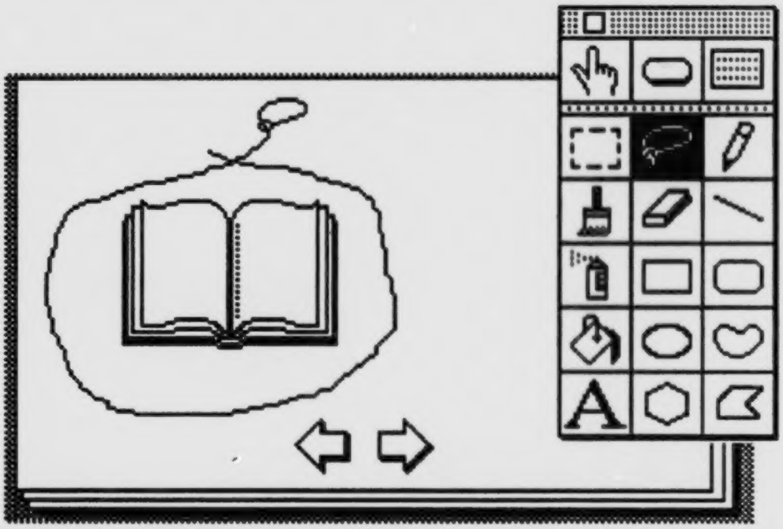
Once you have pasted the champagne bottle into your stack, you can remove the extraneous elements. Use the Eraser tool to remove everything except the bottle and the cork.



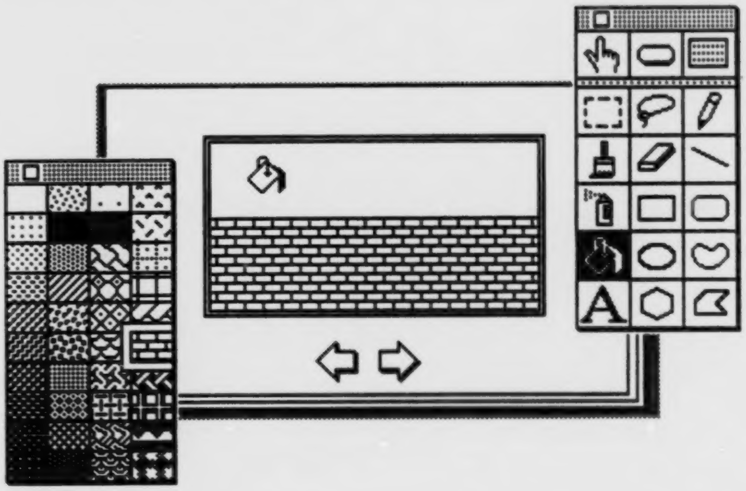
This clip art picture will be used in the next lesson, when we uncork the bottle to celebrate your new *HyperCard* skills.

Other Tools

The Lasso is another tool that can be used to select an object in much the same manner as the rectangular Selection tool. When the Lasso is selected, it can be drawn around an object in a free-form fashion to enclose a desired portion of the picture.



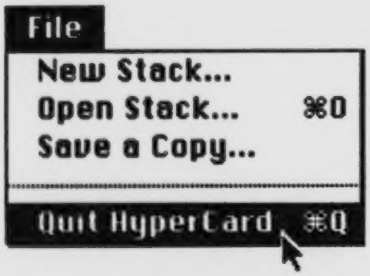
The Bucket is another useful Paint tool. When one of the Paint tools such as the paint bucket is selected, a Pattern palette can be pulled down from the Menu bar in much the same way as the Tools palette can be pulled down and positioned. The Bucket will fill an enclosed space with the currently selected pattern.



However, the smallest opening will allow the paint to leak out and fill the entire screen. If this happens, you can reverse the process by selecting the **Undo** option under the **Edit** menu. Be careful not to click the mouse button before selecting **Undo**, because even one mouse click may make it impossible to undo the spilled paint.

Saving Work

Before stopping, you will want to save your work. When you quit *HyperCard*, any changes you have made are automatically saved to the file. The **Quit HyperCard** option is found under the **File** menu.



You may have noticed that some of the Menu options have a cloverleaf (⌘) and a letter beside them. For example, the option **Quit HyperCard** has a ⌘ Q beside it. Options with letters beside them can be invoked by holding down the Command key (the one to the left of the spacebar with a cloverleaf symbol on it) and typing the letter shown. For example, you could quit *HyperCard* with ⌘Q as well as by selecting the **Quit HyperCard** option from the **File** menu. Two very useful shortcuts are ⌘C for **Copy** and ⌘ V for **Paste**. These two commands are available in every Macintosh program, not just in *HyperCard*. This consistency makes it much easier to learn new programs on the Macintosh.

Troubleshooting Tip: When quitting HyperCard, the stack is always saved in the folder and disk selected at the time the new file is created. If your stack is not visible on your floppy disk after you exit HyperCard, check the HyperCard folder of the hard disk. If you are using a public machine, it is important not to clutter up the hard disk with miscellaneous files. Your stack will also be safer if you keep it on a floppy disk that you take away with you.

Summary

In this chapter, you learned the following skills:

☐ How to create a new *HyperCard* stack.

☐ How to use several of the *HyperCard* Paint tools.

☐ How to copy and paste clip art.

☐ How to save your work and exit *HyperCard*.

You also learned how to create a type of *HyperCard* animation by using the Arrow keys to go from one card to another, as in the example of the disappearing Cheshire cat. In the next chapter we will show you how to create *HyperCard* buttons that will take you from one card to another.

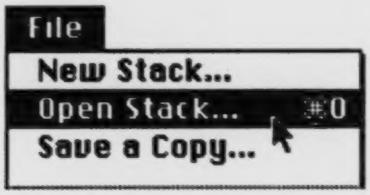
Chapter 2. HyperCard Buttons

In the first chapter, we introduced Paint tools and clip art, which can be used to create the individual cards that are arranged in *HyperCard* stacks. We demonstrated how a champagne bottle can be copied from the Art Ideas stack of the Home Card to your own stack. We will use the same champagne bottle to introduce *HyperCard buttons*. Buttons are used to connect cards to each other.

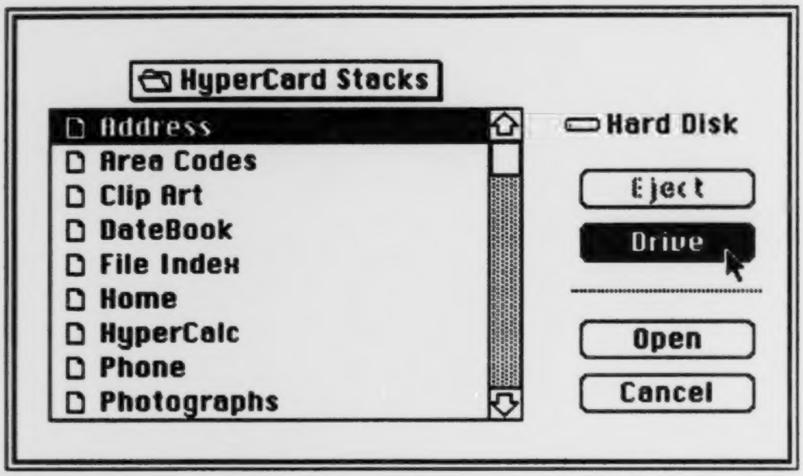
Opening a Stack

Double-click on the *HyperCard* icon to start *HyperCard*. This will launch the *HyperCard* program and take you to the Home Card.

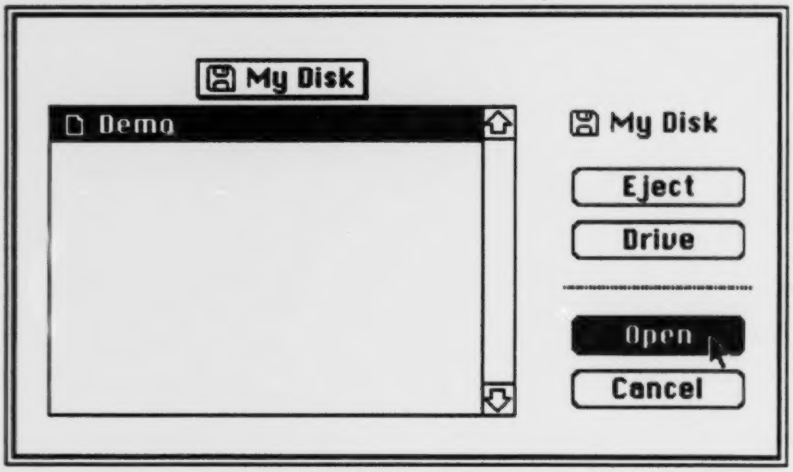
To retrieve the stack you created in the first lesson, go to the **File** menu and select the **Open Stack** option. *(Troubleshooting Tip: If all of the menus, including the* ***Tools*** *menu, are not visible on the Menu bar at the top to the screen, check the User Preferences card to be sure that someone has not set it to a level lower than User Level 5,* ***Scripting****, since you last used HyperCard. See Chapter 1 for instructions on setting the User Level.)*



The **Open Stack** dialog box will appear. The following example shows stacks in the *HyperCard* Stacks folder on the hard disk. If your stack from the previous lesson is on another drive, click the **Drive** button. Each time you click this button, the Macintosh will rotate to another disk. Stop when the name of your disk appears in the upper right corner of the dialog box. (Your disk must be in the disk drive, of course, before this can occur.) *Note: The illustration shown below is for Version 1 of HyperCard. The dialog box for Version 2.0 may be slightly different.*


HyperCard Stacks
Address
Area Codes
Clip Art
DateBook
File Index
Home
HyperCalc
Phone
Photographs
Hard Disk
Eject
Drive
Open
Cancel

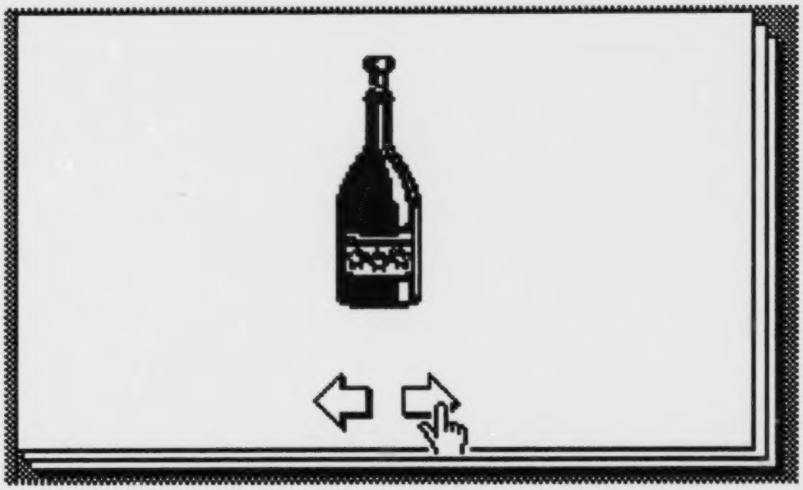
When your disk appears, click once on the name of the stack you created in the first lesson. We called our first stack "Demo," but you may have used a different name. Once the stack name has been highlighted, click the **Open** button to open the stack.


My Disk
Demo
My Disk
Eject
Drive
Open
Cancel

*Note: The method used to open the Demo stack with the **Open Stack** option on the **File** menu can also be used to open any other stack, such as the Art Ideas stack in the HyperCard folder.*

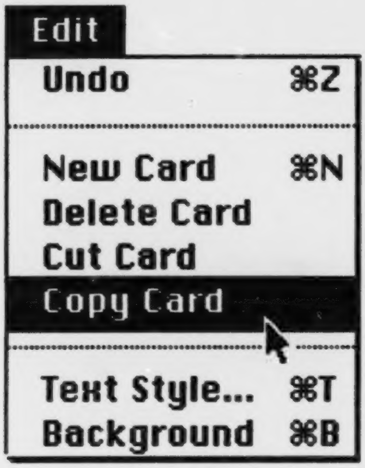
Copying the Card

After the stack is retrieved, use the Arrow keys to go through the stack until you reach the card with the champagne bottle.

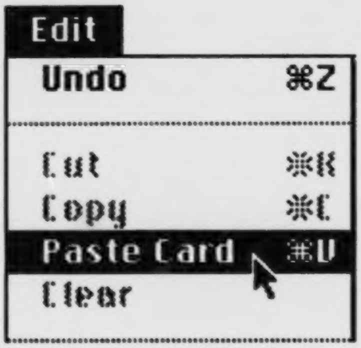


(If you do not have this card, use the *HyperCard* Paint tools to sketch a quick copy of a bottle with a cork.)

First, make a copy of the card with the bottle. To do this, go to the **Edit** menu and select **Copy Card**. This step will paste a copy of the card onto the Clipboard.

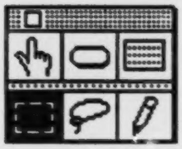

Edit
Undo ⌘Z
New Card ⌘N
Delete Card
Cut Card
Copy Card
Text Style... ⌘T
Background ⌘B

After you select **Copy Card**, the **Paste Card** option will be enabled. Go to the **Edit** menu again, and select the **Paste Card** option this time.



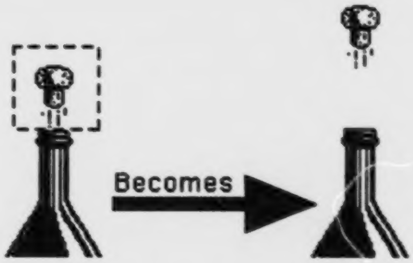
Changing the Copy

Selecting **Paste Card** will paste a copy of the card from the Clipboard back into the *HyperCard* stack. The pasted card is inserted *after* the current card. *HyperCard* takes you to the new card after it is pasted. Since the two cards are identical, it may not be obvious that a second card has been created. To demonstrate that another card exists, let's change one of them. Choose the Select tool, located just beneath the Browse tool on the Tools palette.



Move the cross-hair of the Select tool to the upper left of the cork of the bottle. Then hold down the mouse button, and drag the cursor across the cork. When you are finished, the swirling dashed lines of the Select rectangle should surround the cork.

Move the cursor to the middle of the rectangle of dashed lines. When the cursor is in the middle of the rectangle, hold down the mouse button and move the cork upward. Then move the cursor outside of the rectangle, and click the mouse once to fix the cork in its new position.

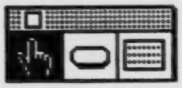


Now a second champagne bottle with a partially removed cork exists on the copy you just made of the first champagne bottle card. To demonstrate that this is so, press the Left Arrow key on the keyboard, or use the Browse tool to click the Left Arrow at the bottom of the

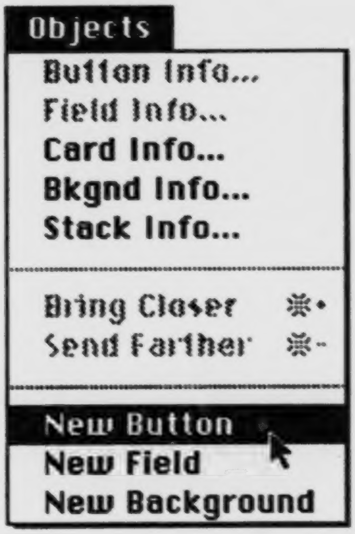
HyperCard screen. *HyperCard* will take you to the previous card, and the cork will appear to move back into the bottle. The effect is somewhat like playing a videotape in reverse to create a special effect on television.

Creating a Button

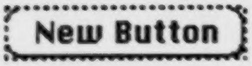
Now that you have generated the effect manually by using the Arrow keys to flip between the two cards, the next step is to automate the process by creating a button that will switch between the two cards when it is pressed. Go to the card with the cork closest to the bottle. Choose the Browse tool (the one that looks like a hand) on the Tools palette.



Then go to the **Objects** menu on the Menu bar at the top of the screen, and select the **New Button** option. *(Troubleshooting Tip: If the* ***Objects*** *menu is not visible, the Browse tool probably is not selected.)*

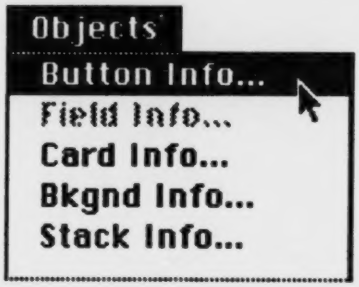

Objects
Button Info...
Field Info...
Card Info...
Bkgnd Info...
Stack Info...
Bring Closer ⌘+
Send Farther ⌘–
New Button
New Field
New Background

Selecting **New Button** will cause a new button to appear on the screen.

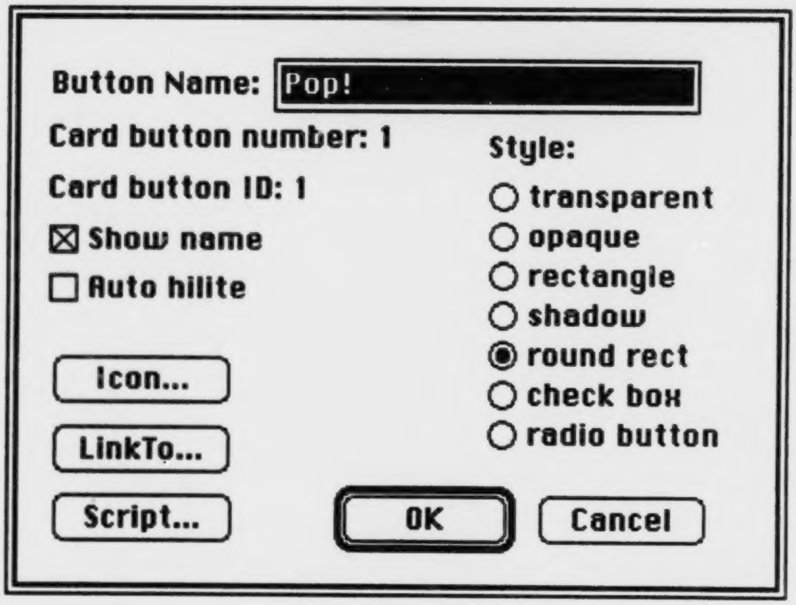


The swirling rectangle of dashed lines that surrounds the button indicates that the button is selected.

If you choose the **Button Info** option on the **Objects** menu while the button is selected, a dialog box will appear. (*Troubleshooting Tip: If the **Button Info** option is not available, the new button probably is not selected. To reselect the button, first check to make sure that the Button tool—the middle tool in the top row—is highlighted. Then click once on the new button to reselect it.*)



The dialog box permits various features of the button to be specified. First, change the name of the button from the default value of "New Button" to "Pop!" by typing Pop! *HyperCard* will automatically replace the words "New Button" with what you type. *Note: The illustration shown below is for Version 1 of HyperCard. The dialog box for Version 2.0 may be slightly different.*



Button Name: Pop!

Card button number: 1

Card button ID: 1

☒ Show name

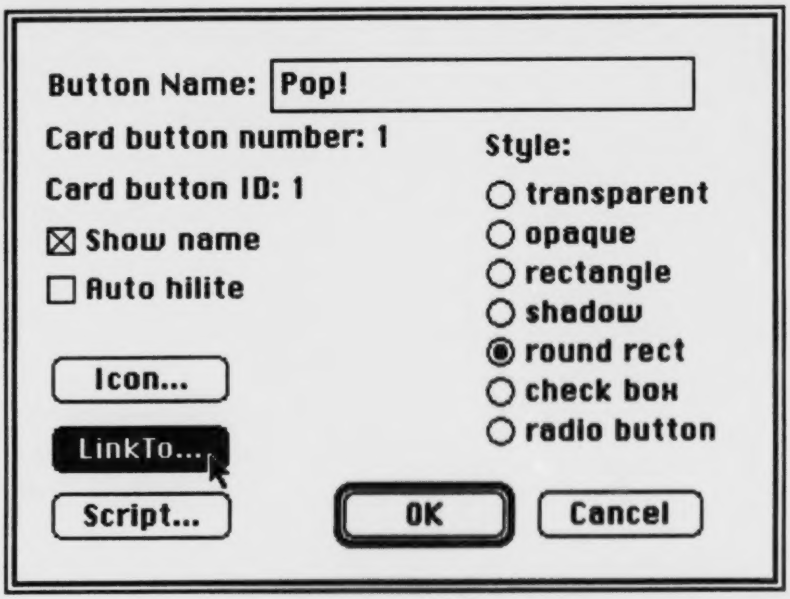
☐ Auto hilite

Style:

○ transparent
○ opaque
○ rectangle
○ shadow
● round rect
○ check box
○ radio button

Automatic Card Connections: Establishing a Link

After you have changed the name of the button, go to the bottom of the dialog box and select the **LinkTo** option.



Button Name: Pop!

Card button number: 1

Card button ID: 1

☒ Show name

☐ Auto hilite

Style:

○ transparent

○ opaque

○ rectangle

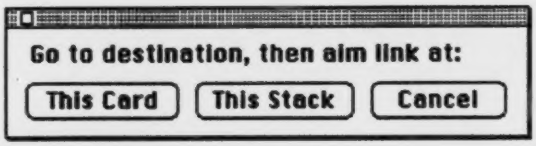
○ shadow

● round rect

○ check box

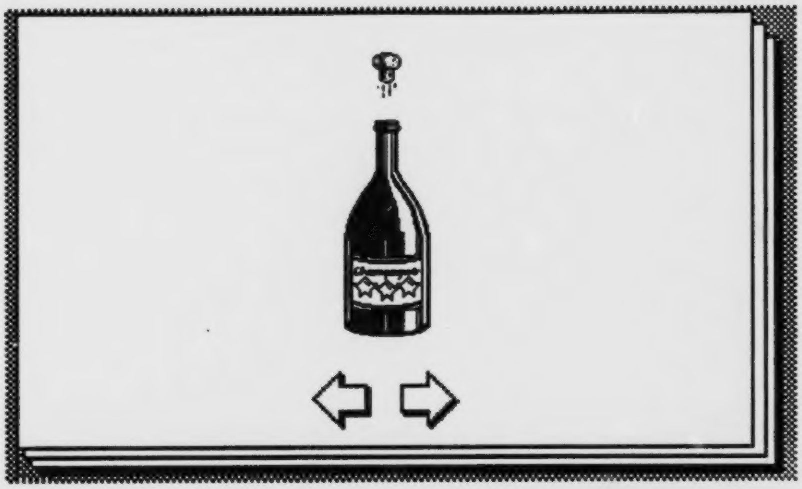
○ radio button

When the **LinkTo** option is selected, another dialog box will appear. The **LinkTo** dialog box allows you to choose the card to which the present card will be linked with a press of the button that you are creating. After you complete the new button, pressing it (with a mouse click) will take you to a different card in your *HyperCard* stack. The button is then said to be *linked* to that card.

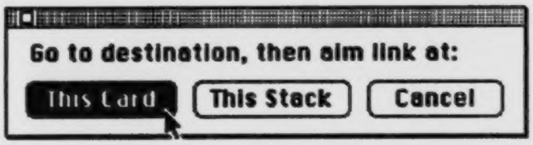


Go to destination, then aim link at:

When you see this dialogue box, resist the temptation to select an option at first. Instead, use the Arrow keys to go to the card in which the cork is popping out of the champagne bottle.



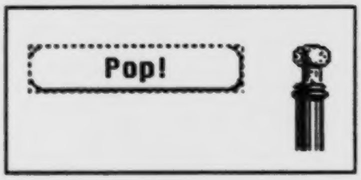
Once you are at the new card on which the cork is flying from the champagne bottle, select the **This Card** option in the **LinkTo** dialog box.



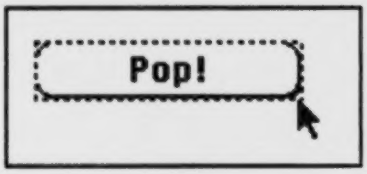
Go to destination, then aim link at:

Automatic Card Connections: Finishing a Button

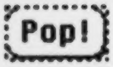
After you select **This Card**, *HyperCard* will return you to the original card on which you are placing the Pop! button, where the cork is depicted in the bottle. The new *HyperCard* button you have just created will be beside the bottle. A swirling rectangle of dashed lines will surround the button.



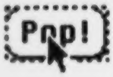
Place the cursor on the lower right corner of the button.



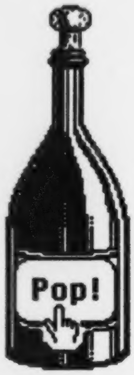
Then hold the mouse button down, and move the cursor to the left. The button should shrink as you move the cursor to the left. (It is necessary for the cursor to be positioned exactly on the dashed line of the select rectangle in order to obtain this result.) Shrink the button until its size matches the bottle's label.



After the button has been resized, place the cursor in the *middle* of the button.



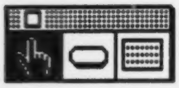
Then hold down the mouse button, and move the *HyperCard* button Pop! until it is centered over the label of the champagne bottle.



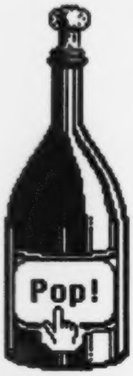
You now have a very special vintage of champagne—*HyperCard* Pop!

Automatic Card Connections: Testing the Button

To try out your new button, select the Browse tool on the Tools palette.



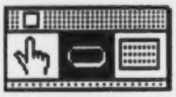
Then place the finger of the Browse tool in the center of the button, and click once.



Clicking the button on the champagne bottle will activate the link you have created that takes you to the next card. Since the champagne bottles on the two cards overlay one another exactly except for the corks, the cork appears to fly out of the bottle when you click on the Pop! button.

Modifying Your Button: Using the Button Tool

Once your button has been successfully created, you may want to modify it. To do this, you must first select the Button tool.



Then click once on the button you wish to modify. The swirling rectangle that surrounds it will indicate that the button has been selected. When the button is selected, several options are available. You can move the button, change its size, or delete it. Move the selected button by placing the cursor in the middle and dragging it to a new location. Change its size by grabbing one of the corners.

When the button is selected, **Cut**, **Copy**, **Paste**, and **Clear** button options are available under the **Edit** menu at the top of the screen. The **Clear** option deletes the button, so be sure not to do this unless you really want to remove the button. You can copy and paste buttons just as you copied and pasted cards. Both objects—cards and buttons—follow the same rules.

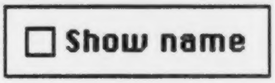
When the button is selected, you can return to the **Button Info** dialog box by selecting the **Button Info** option on the **Objects** menu. *Shortcut: When the Button tool has been selected, you can also return to the Button Info dialog box by double-clicking on the button you wish to modify.*

Creating Icon Buttons

The Pop! button takes the user to a new card in which the cork is flying out of the champagne bottle. A "Return" button is needed to provide the user with a way to return to the first card again. You could write "Return" on a new button, but there are other interesting ways to label buttons.

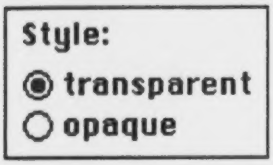
First, go to the last card, which shows the cork completely out of the bottle. Then create another new button by selecting the **New Button** option on the **Objects** menu as you did before. Then double-click the **New Button** option to go to the **Button Info** dialog box. Once you are at this dialog box, you need to perform three tasks.

1. First, disable the **Show name** option. (If the box beside the **Show name** option has an "X" in it, click the box once to remove the "X." This tells *HyperCard* that this new button will not have a visible name.)



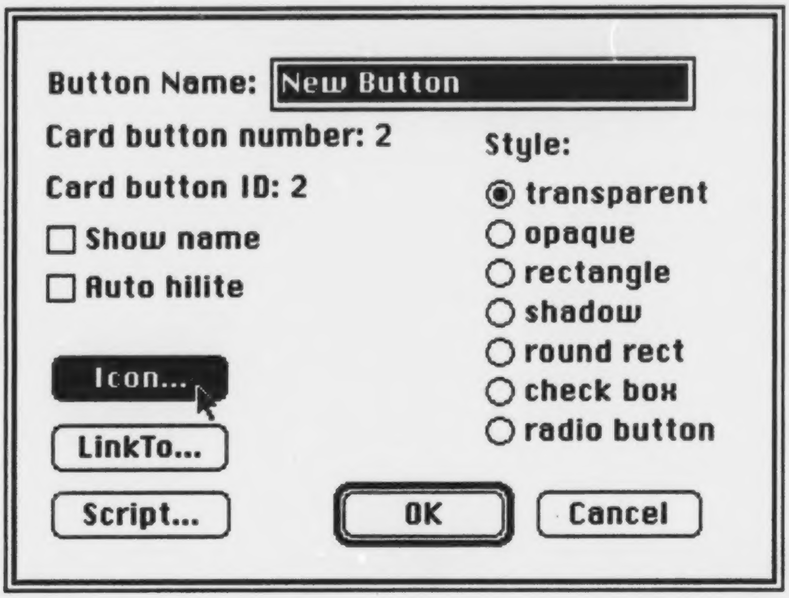
☐ Show name

2. Then change the Style of the button to **transparent.**



Style:
● transparent
○ opaque

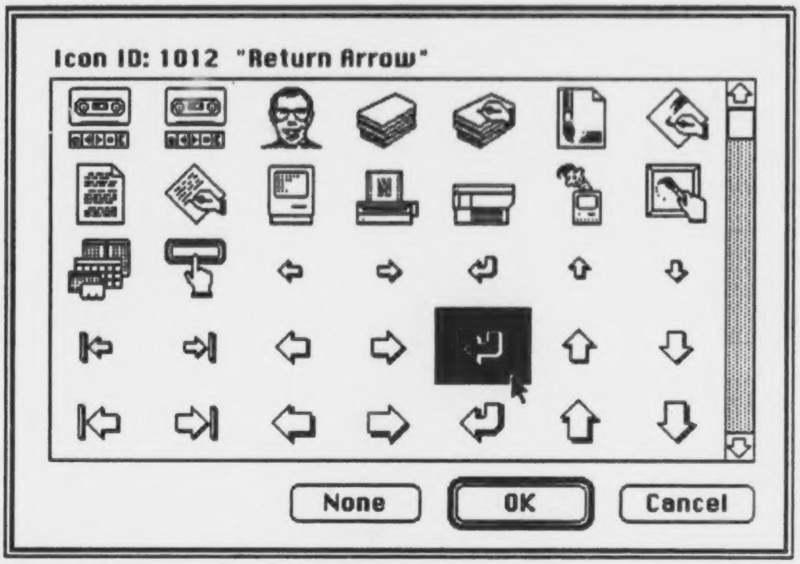
3. Finally, select the **Icon** option, found just above the **LinkTo** option in the dialog box.



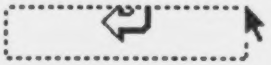
Button Name: New Button
Card button number: 2
Card button ID: 2
☐ Show name
☐ Auto hilite

Style:
● transparent
○ opaque
○ rectangle
○ shadow
○ round rect
○ check box
○ radio button

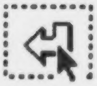
Selecting the **Icon** option will take you to a screen full of icons, or small pictures. Any of these icons can be placed on the button you created. Select one of the Return buttons (curved arrows) by clicking it once, as shown in the next illustration. After you have selected an icon, click the **OK** button at the bottom of the icon screen. *Note: The illustration shown is for Version 1 of HyperCard. The icon screen for Version 2.0 may be slightly different.*



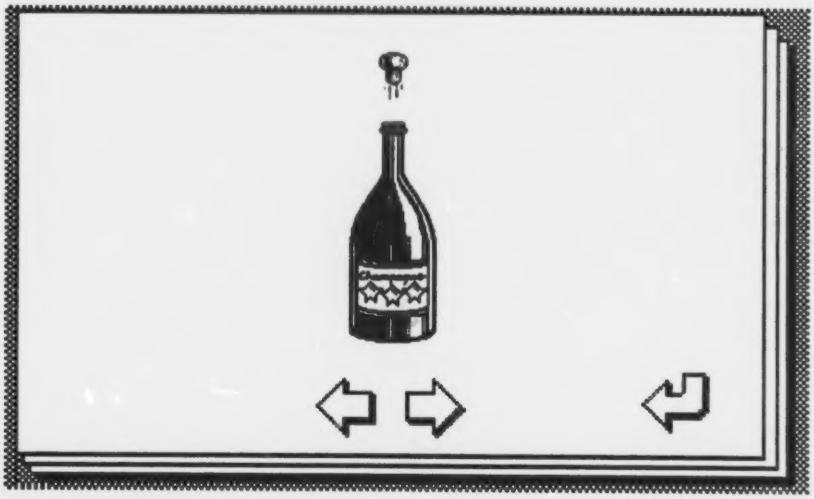
After the icon is selected, the upper part of the Return Arrow icon may be obscured by the top of the button. Place the cursor on the upper right corner of the dashed selection rectangle and resize the Return button, just as you altered the size of the Pop! button.



After you have resized the Return button, place the cursor in the middle of the button

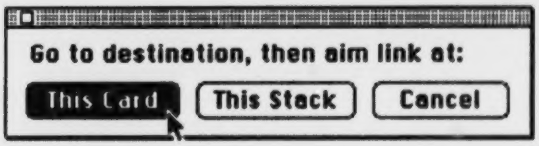


and drag it to the lower right corner of the card.



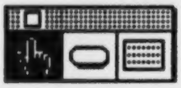
You now have a button with a Return icon on it, in its proper location on the card. The next step is to link the Return button to the previous card. This is accomplished through the same four steps you used to link the Pop! button. First, check to be sure that the Button tool is highlighted.

1. Then double-click on the Return button to go to the **Button Info** dialog box.
2. Once you are in the **Button Info** dialog box, select the **LinkTo** option.
3. Use the Arrow keys to return to the card with the first champagne bottle.
4. Once you are at the correct card, select the **This Card** option in the **LinkTo** dialog box.



Go to destination, then aim link at:

After you have linked the Return button to the card with the first champagne bottle, you are ready to use the new button. Select the Browse tool.



Then place the finger of the Browse tool on the Return button and click once. You will be taken back to the original champagne bottle with the cork in it.

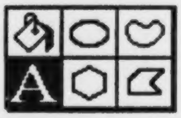
At this point you can pop the cork on the champagne bottle by clicking the Pop! button, and then return to your point of origin by using the Return button on the second card. You have accomplished this by creating two types of buttons:

☐ A button with a label (the Pop! button).

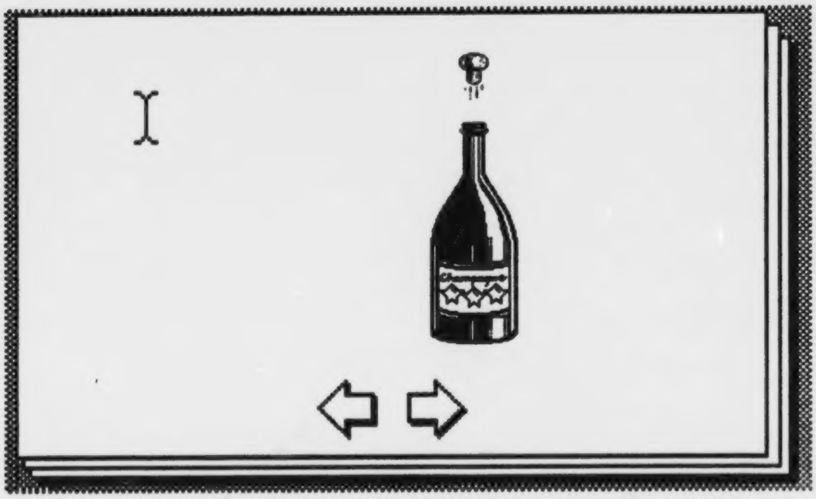
☐ A button with an icon (the Return button).

Hypertext

The above material familiarizes you with the basic mechanics of creating and using *HyperCard* buttons, but it only hints at the range of applications. Another application demonstrates the concept of *hypertext*. Advance to the second champagne card in your stack, and select the Paint Text tool from the Tools palette.



Move the I-Beam cursor to the upper left corner of the card. Click the mouse once to fix the insertion point of the text that you will enter.

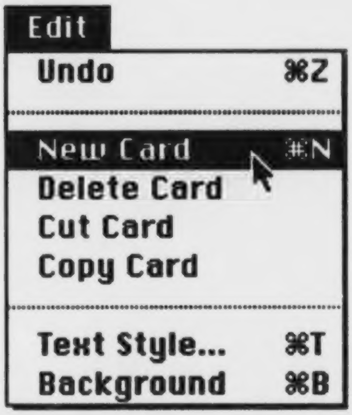


Then enter the following text by typing on the keyboard:

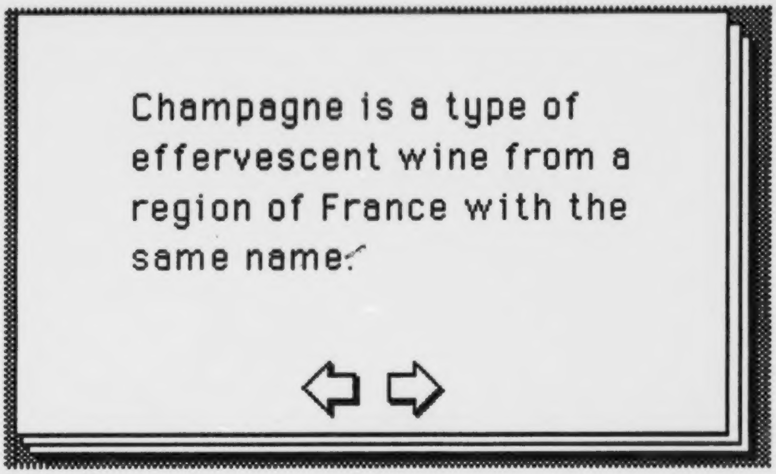
```
This is a bottle
of HyperCard
champagne.
```

It will be necessary to press the Return key on the keyboard when you want to go to the next line, because the text will not wrap automatically.

We are going to create a button that will take the user to an explanation if the word "champagne" is clicked. To do this, we will need to create a new card with the additional information. Go to the **Edit** menu, and select the **New Card** option. Remember, options such as **New Card** that have a cloverleaf symbol and a letter beside them can be invoked by holding down the Command key (the one with symbol on it) and typing the letter. For example, you could make a new card with a ⌘N instead of using the option on the **Edit** menu



Use the Text tool to enter an explanation of "champagne" on the new card. (Don't forget to click the mouse to fix the insertion point at the location of the I-Beam cursor before you begin typing.) You are free (and encouraged) to be more creative with your explanation than we were.



Champagne is a type of effervescent wine from a region of France with the same name.

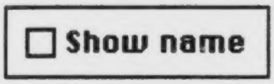
An Invisible Button

After creating the explanation card, use the Arrow keys to return to the card with the initial text and champagne bottle. Eventually, when users click the word "champagne" on this card, they will be taken to the card with additional explanatory text. To enable them to do this, we are going to create an *invisible* button by using the steps listed below. You have previously completed each of these steps when creating the Pop! and Return buttons. This will give you additional practice in creating *HyperCard* buttons.

1. Select the Browse tool and then go to the **Object** menu and select the **New Button** option.

2. Double-click on the button created by this action to go to the **Button Info** dialog box.

3. Within the **Button Info** dialog box, disable the **Show name** option. (If the box beside the **Show name** option has an "X" in it, click the box once to remove the "X.")



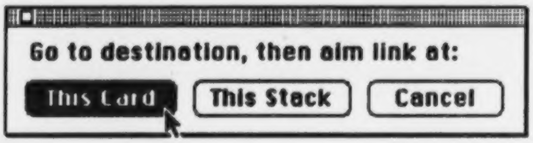
☐ **Show name**

4. Then change the **Style** of the button as you did when you were creating the Return button, specifying **transparent** as the button style.

5. Select the **LinkTo** option.

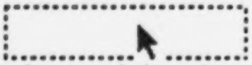
6 Use the Arrow keys to go to the card with the text explanation.

7. Once you are at the card containing this text, select the **This Card** option in the **LinkTo** dialog box.

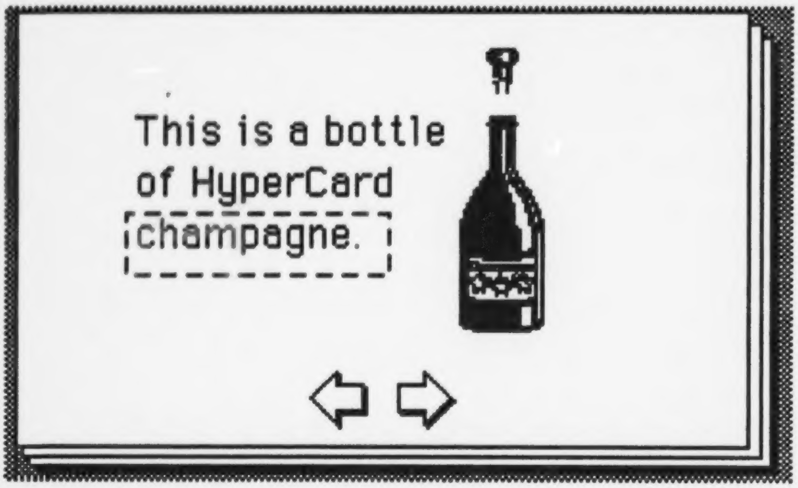


Go to destination, then aim link at:

Once you have created the invisible button and linked it to the card with the explanatory text, you will need to move it so that it encloses the word "champagne." Place the cursor in the middle of the swirling rectangle of dashed lines that define the boundaries of the button.

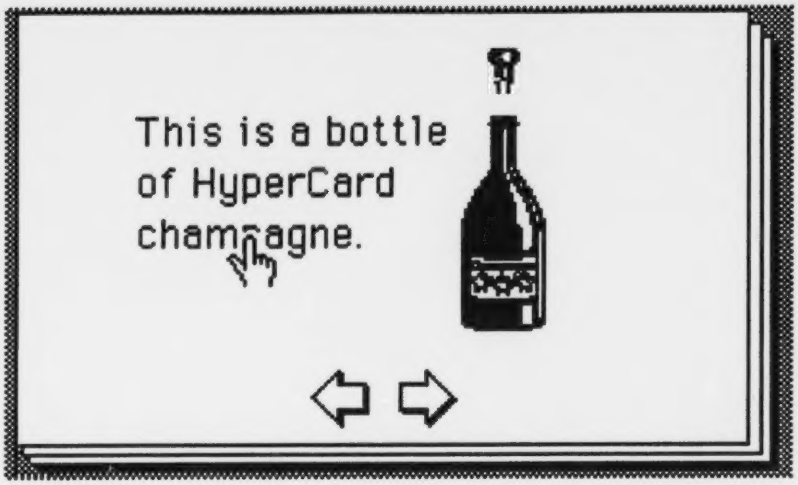


Then hold the mouse button down and drag the invisible button over to the word "champagne." You may need to resize the button in the same way that you resized the Return button so that it fits the boundaries of the word "champagne," as shown in the next illustration.



This is a bottle of HyperCard champagne.

Once the button is positioned appropriately, select the Browse tool. Place the finger of the Browse tool on the word "champagne," and click the mouse once.



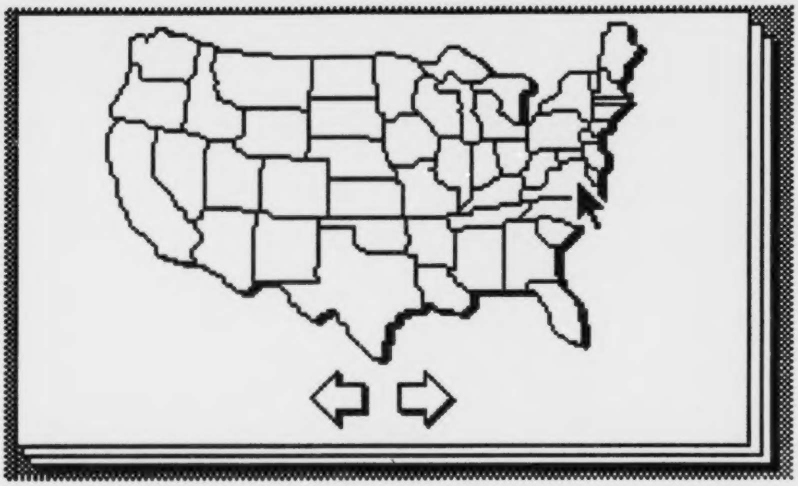
This is a bottle of HyperCard champagne.

Now when you click on the word "champagne," *HyperCard* will take you to the additional explanatory text that describes what champagne is. You will need to add a Return button that returns readers back to the original card after they have finished reading the explanatory text. You can use the same steps you employed previously to add a Return button to the card with the explanatory text.

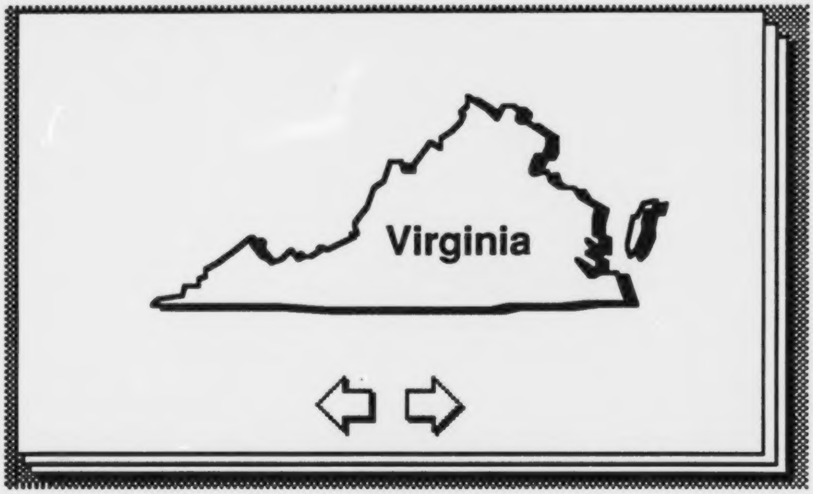
New Structures

In a traditional book, pages are read in a linear fashion from beginning to end. With hypertext it is possible to go from any point to any other point. For example, a medical student reading about the corpus callosum in a hypertext document might simply click on the phrase to see additional information about that anatomical structure. In more advanced systems, the student might also see a slide of the structure in addition to the textual information.

The concept of the invisible button can be used for many other applications in addition to hypertext. For example, in the introductory lesson, we mentioned that an invisible button could be placed over a state on a map of the United States.

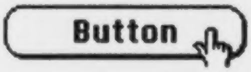


Placing the cursor on a state and clicking the mouse button could then take the user to a second card with a more detailed drawing of the state.



The Browse Tool Versus the Button Tool

Buttons do different things depending on whether the Browse tool or the Button tool is selected when the button is clicked. At first this may occasionally be confusing. However, there's a simple rule. Use the Button tool when you want to edit the button, and use the Browse tool when you want to activate the button.



If you pretend that the finger of the Browse tool is your hand pressing the button to make something happen, this may be easier to remember.

Summary

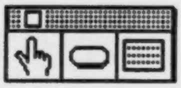
Now that you have mastered creating and linking cards in different ways, a whole new world of educational materials is open to you, in which buttons link information in nonlinear structures. Buttons are the keys to this new type of computer-mediated exploration. In this chapter we have shown you how to create three different types of *HyperCard* buttons:

☐ Buttons with labels (the Pop! button).

☐ Buttons with icons (the Return button).

☐ Invisible buttons (the invisible hypertext button).

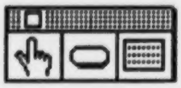
There are three tools on the first row of the Tools palette: the Browse tool, the Button tool, and the Field tool.



In the first two chapters we have discussed the Browse and Button tools. In the next chapter we will discuss fields.

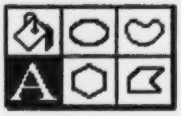
Chapter 3. HyperCard Fields

There are three tools on the first row of the *HyperCard* Tools palette. As they appear from left to right, they are: the Browse tool, the Button tool, and the Field tool. In the first two chapters we discussed the Browse and Button tools. In this chapter we will discuss *HyperCard* fields. An initial introduction to programming in HyperTalk will also be presented.

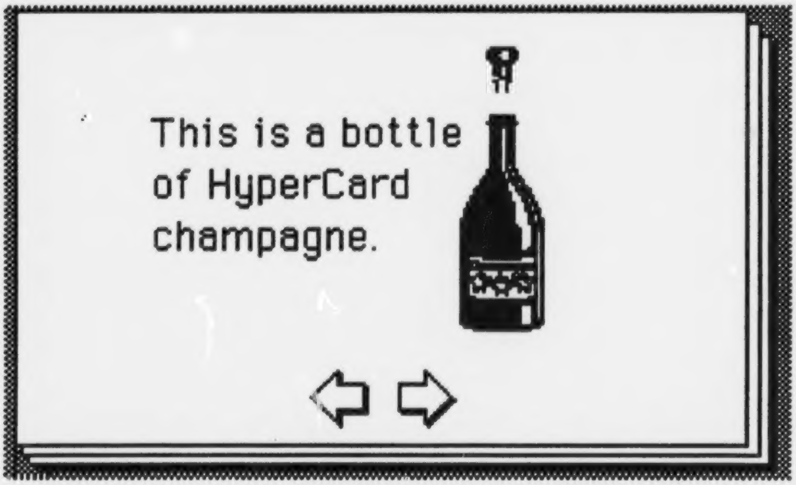


Two Types of Text

In the last chapter, text was created with the Paint Text tool to make a note to place beside the champagne bottle. The Paint Text tool is found in the Paint tools section of the Tools palette.



Text created with the Paint Text tool is placed in the paint layer of *HyperCard*.



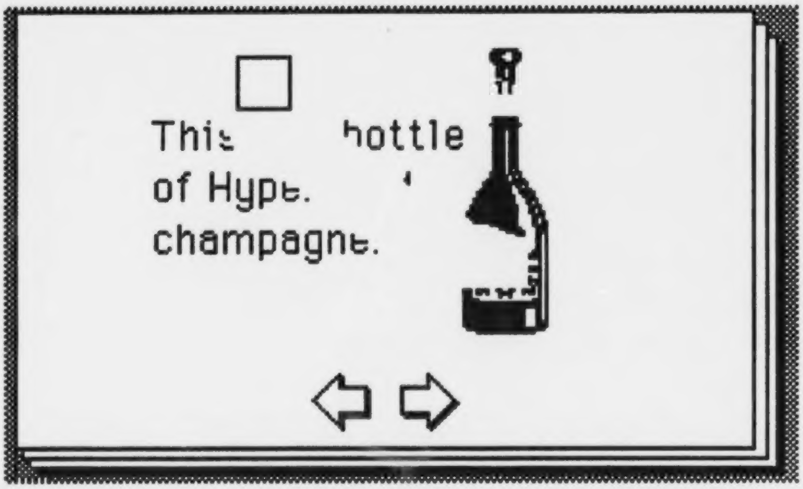
This is a bottle
of HyperCard
champagne.

Text can also be placed in a *HyperCard* text *field*. Text in a *HyperCard* field differs from text created with the Paint Text tool in the Tools palette in two very important ways.

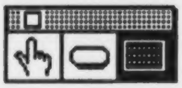
☐ Text created in a *HyperCard* field is not affected by the Eraser tool. In contrast, text created with the Paint Text tool can be erased by using the Eraser tool in the same way that any other object created with the Paint tools can be erased.

☐ Text in a *HyperCard* field not only can be edited later, but the size and style of the font in the text field also can be changed. Text created with the Paint tool cannot be edited once the Paint Text tool is deselected.

Try erasing some text created with the Paint Text tool from the Tools palette. You will observe that the Eraser tool removes text created with the Paint Text tool in the same way that the champagne bottle is erased. However, text created in a *HyperCard* field is not affected by the Eraser tool.

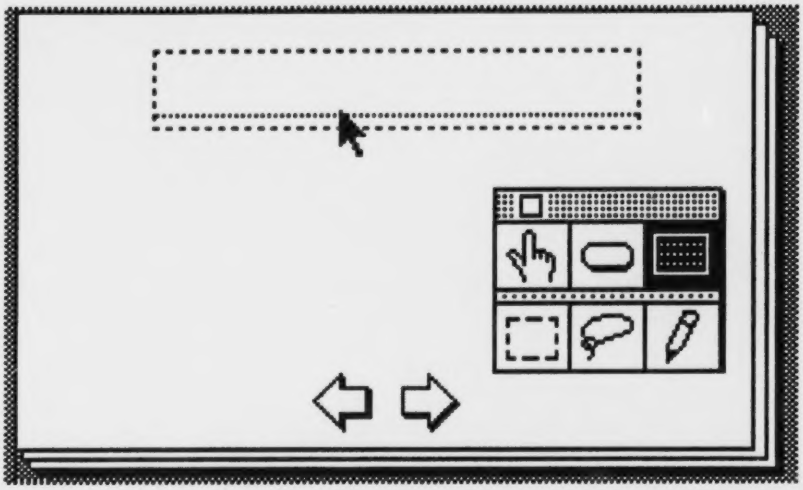


Resume your investigation of *HyperCard* fields by creating a new card in a *HyperCard* stack. You can either use the *HyperCard* stack you created in the last two lessons (if it is available), or you can create a new stack. Pull down the Tools palette and position it in a convenient location. Then select the Field tool at the top of the Tools palette.



It is possible that a field may already be present in your stack. If so, this field will become visible when the Field tool is selected. Delete this field so that it will not become confused with the new fields you are going to create.

To delete a field, place the cursor on the rectangular field and click once to select it. A swirling rectangle of dashed lines will surround the field, indicating that it has been selected. After a field has been selected, press the Delete key in the upper right corner of the keyboard to delete the field. (On some older keyboards, the Delete key is labeled Backspace.) If a field is selected, you can also use the **Cut Field** option on the **Edit** menu to delete it.

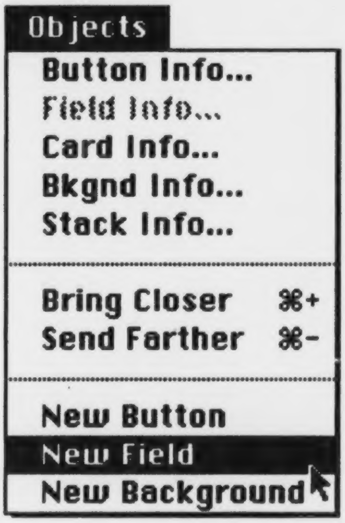


After the Delete key is pressed, a message will appear that asks, "Delete this field and its text from all cards of this background?"

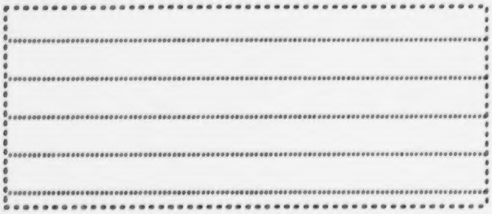
Confirm that you do wish to remove the field when this message appears.

Creating a Field

After you have deleted any existing fields, you will be ready to create your own *HyperCard* field. Go to the **Objects** menu on the *HyperCard* Menu bar and select the **New Field** option. *(Troubleshooting Tip: If the Objects menu is not visible, the Browse tool probably has not been selected.)*


Objects
Button Info...
Field Info...
Card Info...
Bkgnd Info...
Stack Info...
Bring Closer ⌘+
Send Farther ⌘-
New Button
New Field
New Background

After the **New Field** option is selected, a rectangular field will appear on your screen.



The swirling rectangle of dashed lines surrounding the field indicates that the field is selected. If you choose the **Field Info** option on the **Objects** menu while the field is selected, a dialog box will appear. *(Troubleshooting Tip: If the **Field Info** option is not available, **New Field** probably is not selected. To reselect the field, first check to make sure that the Field tool—the third tool in the top row—is highlighted. Then click once on **New Field** to reselect it.)*

When the Field Info dialog box appears, follow these steps:

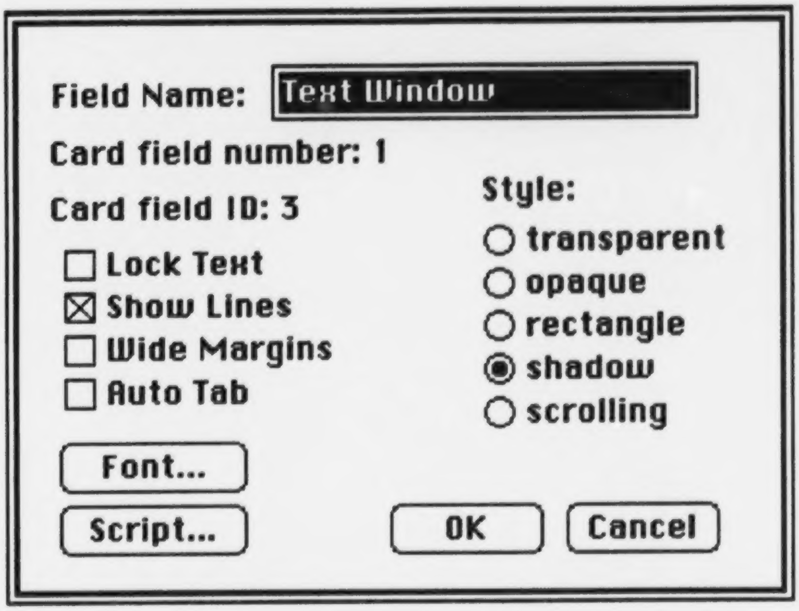
☐ Select the **shadow** option under the **Style** menu.

☐ Select the **Show Lines** check box.

☐ Type "Text Window" in the **Field Name** box. Be sure there are no spaces in front of the name "Text Window" since *HyperCard* considers spaces to be a significant part of the name.

☐ Then click the **OK** button.

Note: The dialog box shown is for Version 1 of HyperCard. The dialog box for Version 2 may show several additional options.



Field Name: Text Window

Card field number: 1

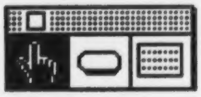
Card field ID: 3

☐ Lock Text
☒ Show Lines
☐ Wide Margins
☐ Auto Tab

Style:
○ transparent
○ opaque
○ rectangle
● shadow
○ scrolling

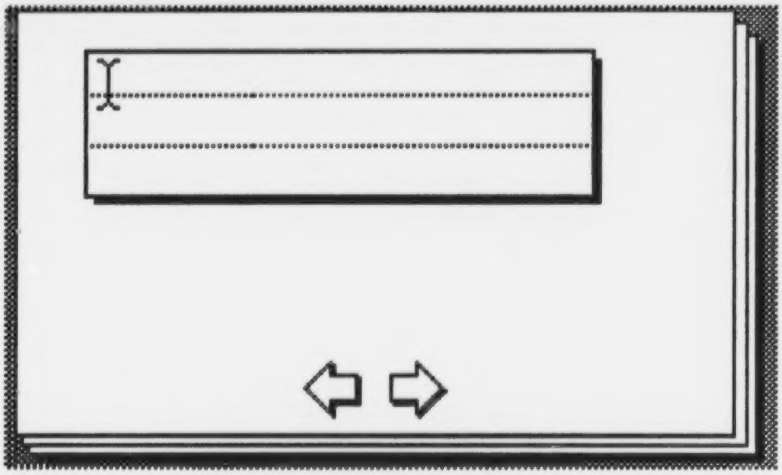
After you have clicked the **OK** button, the field will reappear with the selected options enabled. Note that the field now appears to cast a shadow. At this point the field can be resized or moved to any position on the screen, just as a button can be.

Once you have moved the field to the center of the screen, shift from the Field tool back to the Browse tool once more.



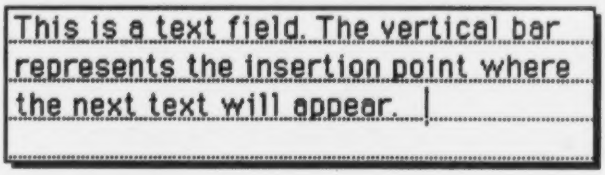
Entering Text in a Field

Move the hand of the Browse tool into the new field. Note that as the Browse tool moves into the field, it shifts from the shape of a hand to an I-Beam cursor. The I-Beam cursor is used to select an insertion point for placement of text. This is true for all Macintosh applications; it works much the same in *HyperCard* as it does in any other Macintosh program.



Position the I-Beam cursor in the upper left corner of the field and click once. A vertical bar will be displayed. This vertical bar is known as the *insertion point*. It indicates where text will appear when the user begins typing. Once the vertical bar appears, the I-Beam cursor can be moved (by moving the mouse) if it is in the way.

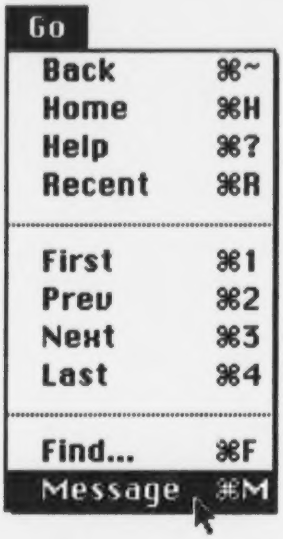
After you have selected an insertion point by placing the I-Beam cursor in the text field and clicking once, type some text in the field. What you type is not important; just familiarize yourself with the process of entering text in a field.



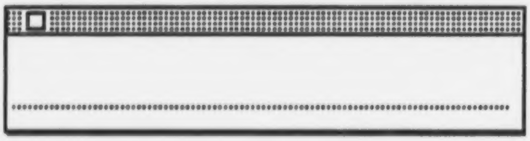
This is a text field. The vertical bar
represents the insertion point where
the next text will appear. |

The Message Box

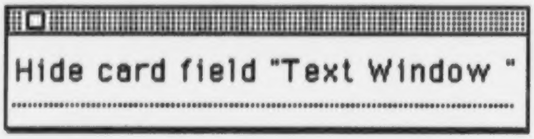
It is possible to make the text field appear or disappear by sending a message to *HyperCard* through a Message Box. To get the Message Box, select the **Message** option under the **Go** menu (or type ⌘ M).



The **Message** option will cause the Message Box to appear at the bottom of your screen.



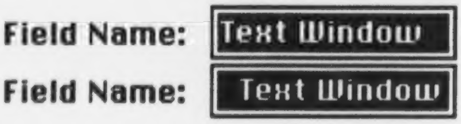
Once the Message Box is present, place the cursor in the left side of the Message Box and click once. Then type the following message in the Message Box



```
Hide card field "Text Window "
```

and press Return. The "Text Window" field should disappear.

Troubleshooting Tip: If HyperCard complains, "Never heard of card field text window," check to be sure that the name in the Field Info dialog box does not have a space in front of it. HyperCard considers the field names shown in the following illustration to be two different field names:



Field Name: Text Window

Field Name: Text Window

You can make the field reappear by typing

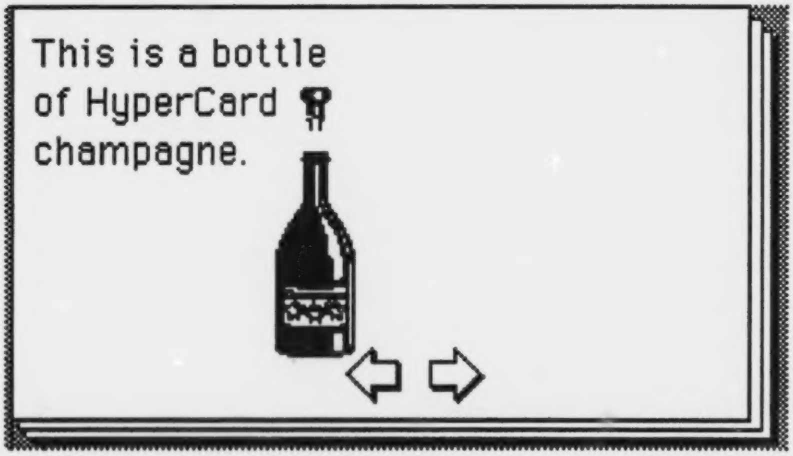
```
Show card field "Text Window"
```

in the Message Box.

Pop-Up Text Fields

In the previous lesson, you will remember, an invisible button was placed over one of the words in some text about the champagne bottle created with *HyperCard* clip art. When the cursor was placed over the word covered by the button and the mouse button was clicked, the script of the button took the user to another card containing a definition of the word "champagne." With new knowledge about the behavior of fields, you can create an alternative hypertext mechanism for this card. It will no longer be necessary to send the user to a different card. Instead, a *pop-up field* can be created on the same card where the champagne bottle appears.

Retrieve the Champagne Bottle example from the previous lesson or create a new card similar to the one in the illustration. (You can use the **Open Stack** option on the **File** menu to open another stack. Then use **Copy Card** on the **Edit** menu to copy the card. Return to your new stack, and use **Paste Card** to paste the copy of the card into your new stack.)

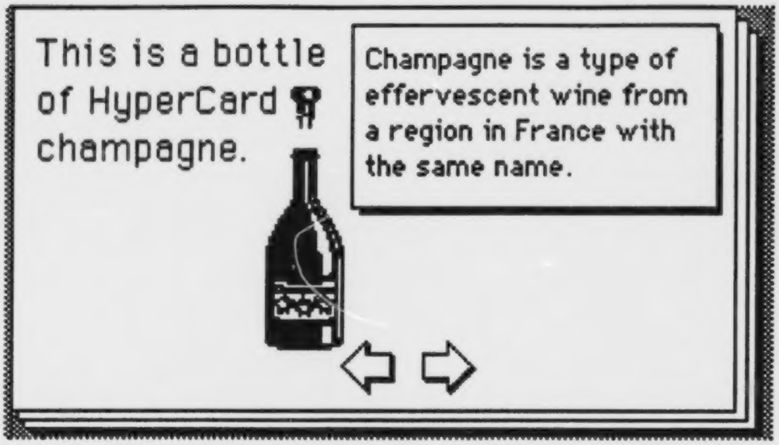


This is a bottle of HyperCard champagne.

Then create a field named "Definition" that will contain the text of the pop-up note. The **Style** of the field should be **shadow**, and the name entered into the **Field Name** area should be "Definition." After creating the field, enter the text of the pop-up note in the field:

```
Champagne is a type of effervescent
wine from a region in France with the
same name.
```

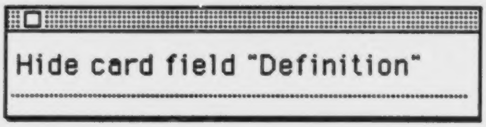
Position the field in a convenient location on the card with the Browse tool. It doesn't matter if the field covers part of the bottle or the other text on the card.



This is a bottle of HyperCard champagne.

Champagne is a type of effervescent wine from a region in France with the same name.

Make the definition field go away by typing the following in the Message Box:



```
Hide card field "Definition"
```

Press the Return key after you have typed the command into the Message Box. The field with the definition should disappear.

Scripts for Buttons

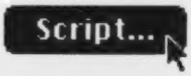
You could make the "Definition" field reappear by typing

```
Show card field "Definition"
```

in the Message Box. However, the objective is to make the "Definition" field pop up when the user clicks on the word "Champagne." First, remove the old invisible button on the word "Champagne" if you are using the stack you created in the previous lesson. (To do this, just choose the Button tool and click once on the button to select it. Then press the Delete key on the keyboard or select the **Cut Button** option on the **Edit** menu.)

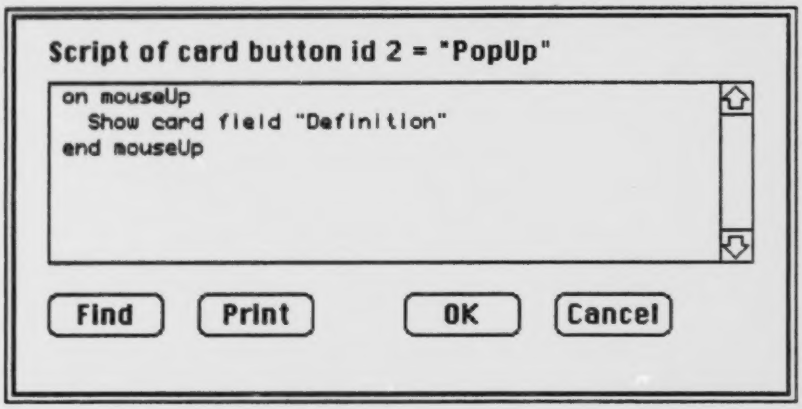
Then make a new invisible button to cover the word "Champagne." Select the **New Button** option under the **Objects** menu, and go to the **Button Info** dialog box. Set the **Style** of the button to **transparent**, and make sure that the **Show Name** check box is not selected.

Then click the **Script** button in the lower left corner of the **Button Info** box.



After the **Script** button is selected, a Scripting box for the button will appear. You are now ready to write your first HyperTalk program. (HyperTalk is the programming language built into *HyperCard*.) The words "on mouseUp" and "end mouseUp" will already be present in the

Scripting box. These commands begin and end scripts (programs) that are executed when the mouse button is released after having been pressed. Your HyperTalk program should be placed between these two phrases. *Note: Your button may have a different ID number.*



Script of card button id 2 = "PopUp"

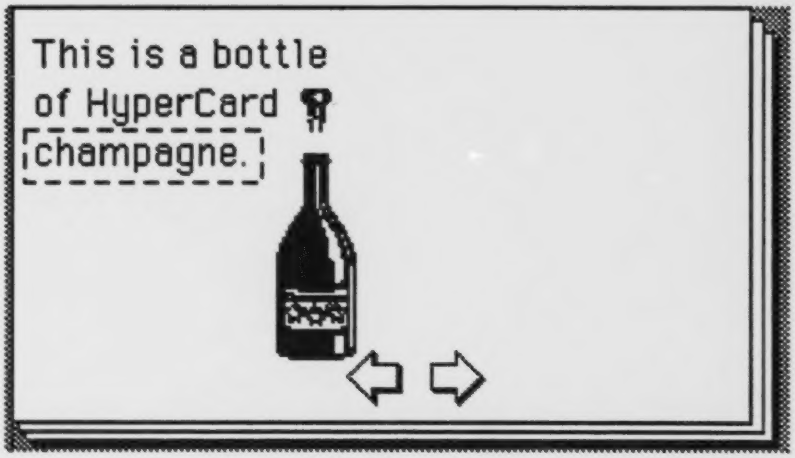
```
on mouseUp
  Show card field "Definition"
end mouseUp
```

In the Scripting box, enter the following HyperTalk program, placed between the phrases "on mouseUp" and "end mouseUp":

```
Show card field "Definition"
```

Be very sure that you have typed the commands exactly as shown. Even the smallest typographical error will confuse *HyperCard* and cause your program not to work. Once you are sure the commands have been entered correctly, click the **OK** button at the bottom of the Scripting box. *Note: If you are using HyperCard 2.0, the Scripting box will have a slightly different appearance. Click the close box in the upper left corner to save your script if you are using HyperCard 2.0.*

Then drag the button over to the word "Champagne" and adjust its boundaries until they match the size of the word.



This is a bottle
of HyperCard
champagne.

You now have a pop-up field and a button that will make the field appear when the user clicks the word that the button covers. Choose the Browse tool and click the word "Champagne." Did the "Definition" field pop up? If it did, congratulations! You have just written your first HyperTalk program. If the field did not appear, check the script to make sure it is correct. It is particularly important that the name of the field matches the field name called for in the script.

Scripts for Fields

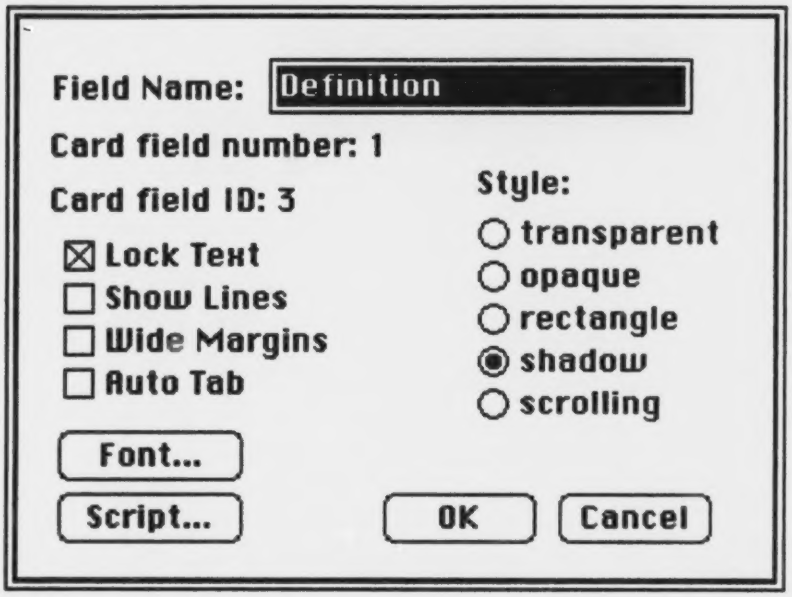
Once the pop-up note has been read, the reader needs a way to make it disappear again. You could place an invisible button over the field in much the same way that an invisible button was placed over the word "Champagne." However, there is a more elegant way of doing this. Fields can also have scripts. Choose the Field tool and click on the "Definition" field to select it. Then either use the **Field Info** option or double-click the field to access the **Field Info** dialog box. Then click the **Script** button in the lower left corner of the **Field Info** box.

Place the following program in the script of the card field "Definition":

```
on mouseUp
  hide me
end mouseUp
```

This simple but elegant script will hide the field when it is clicked. There is only one small problem—in order to click a button or field, it is necessary to place the finger of the Browse tool on the object to be clicked. However, the hand of the Browse tool becomes an I-Beam cursor the moment it enters a *HyperCard* field! However, there is a way around this problem.

Go back to the **Field Info** dialog box of the card field "Definition." Then select the **Lock Text** option. The **Lock Text** option is provided to lock the text of a field so that it is not accidently changed by a user. That is certainly a desirable feature in this instance. *Note: The dialog box shown is for Version 1 of HyperCard. The dialog box for Version 2 will show additional options.*


Field Name: Definition

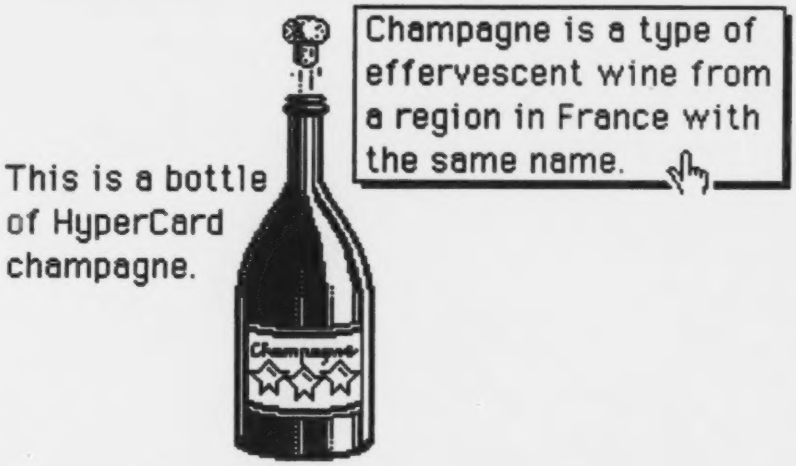
Card field number: 1

Card field ID: 3

☒ Lock Text
☐ Show Lines
☐ Wide Margins
☐ Auto Tab

Style:
○ transparent
○ opaque
○ rectangle
● shadow
○ scrolling

A second consequence of locking the text of a field is that the hand of the Browse tool no longer changes to an I-Beam cursor when it enters the text field. This is a signal indicating to the user that the text of the field cannot be changed. However, it also allows the Browse tool to be used to click the field so that its script is activated, which is exactly what is desired in this case.


This is a bottle of HyperCard champagne.

Champagne is a type of effervescent wine from a region in France with the same name.

Use the Browse tool to click the "Champagne Definition" field. It should disappear. Now place the finger of the Browse tool over the word "champagne " and click again. The pop-up field should reappear.

If you were creating a pop-up note for users who were not familiar with *HyperCard* conventions, you might also want to include the words "Click Here" at the bottom of the text field to indicate how the note may be removed after it is read.

Summary

In this chapter the difference between text created with the Paint Text tool from the Tool palette and text created in a *HyperCard* field was reviewed. The concept of a field as a "text window" was introduced. The creation and use of pop-up fields were demonstrated. This provides an important way of providing optional information for the user.

Short scripts served as an introduction to HyperTalk programming. Programs were created for two types of *HyperCard* objects to illustrate their use:

☐ A script for a *HyperCard* button.

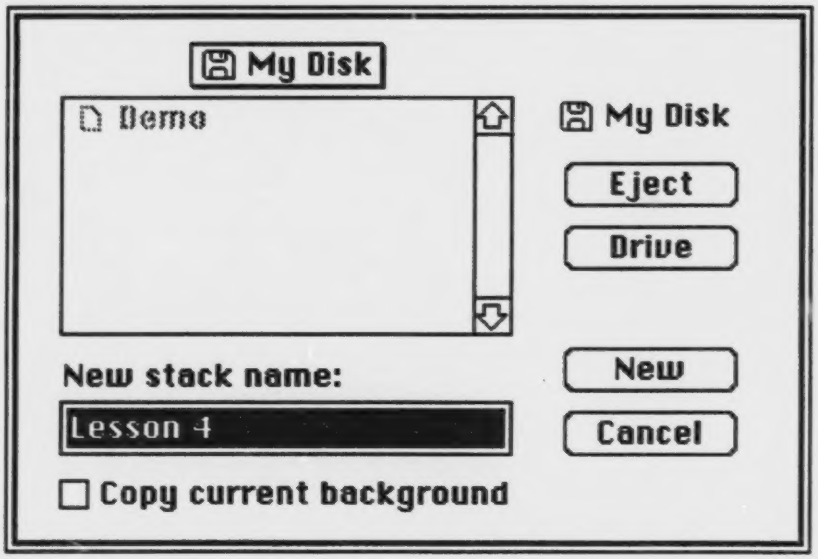
☐ A script for a *HyperCard* field.

In addition to these types of *HyperCard* objects, scripts can also be placed in *HyperCard* backgrounds, cards, and stacks. These types of *HyperCard* objects will be discussed in future chapters.

Chapter 4. HyperCard Backgrounds

In the first three chapters we discussed the Browse tool, the Button tool, and the Field tool, and presented an initial introduction to the HyperTalk programming language. In this chapter we will describe *HyperCard* backgrounds.

Begin by creating a new *HyperCard* stack. When the **New Stack** option is selected in the **File** menu of *HyperCard*, you will note that a checkbox titled **Copy current background** is available. Be sure that this box is *not* checked when you create the new stack. *Note: The dialog box shown is for Version 1 of HyperCard. The dialog box for Version 2 of HyperCard will differ slightly.*

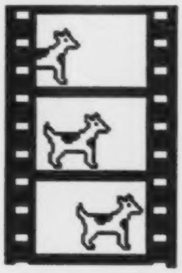


New stack name: Lesson 4

☐ Copy current background

New Backgrounds

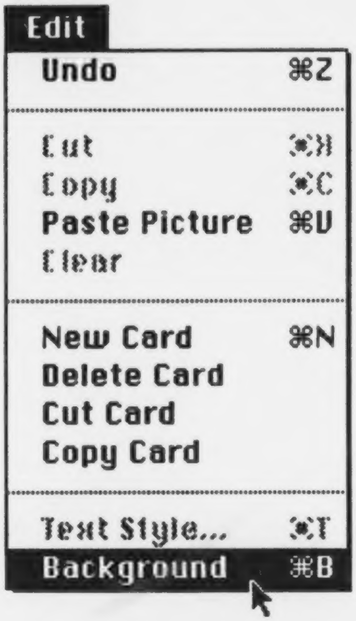
When the first animated films were created, artists created the illusion of movement by shifting the position of objects in each successive frame of the film.



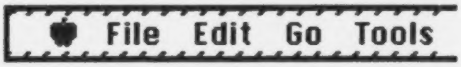
It soon became clear that it was not necessary to redraw every object in the frame. Only objects with changed positions needed to be redrawn. Elements in the background could be left unchanged.

This was accomplished by drawing the background and foreground on separate celluloid panels. The clear celluloid panel containing the foreground objects could be placed over the background panel and photographed. This celluloid frame, or cel, as it is called in the film industry, could then be removed and replaced by another panel showing the foreground object in a slightly different position.

Today these cels are collector's items, and ones from classic films such as *Fantasia* may be worth a considerable sum of money. *HyperCard* has the same capability of creating objects in foreground and background layers. To access the background layer of *HyperCard*, select the **Background** option at the bottom of the **Edit** menu.



You will immediately be able to recognize when *HyperCard* is in the background layer because the Menu bar will have diagonal slashes through it. In addition, all the objects in the foreground are removed so that you can focus on the background objects alone.



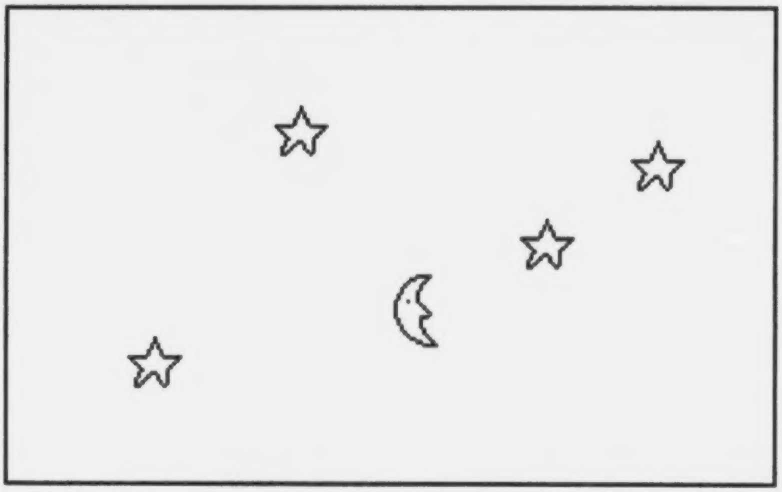
To demonstrate how the *HyperCard* background functions, let's create a night sky as a backdrop. Then a planet in the foreground can be moved across this backdrop. You can copy some stars from the sample clip art in the Art Ideas stack of the Home Card if you are using Version 1 of *HyperCard*, or use the *HyperCard* Paint tools to make your own stars if you are using Version 2.

Art Ideas

If you choose to transfer some of your background from clip art in Art Ideas, you will find stars, planets, and so forth in the Science, Astronomy, Chemistry, Planets section of the Art Ideas stack.

Science, Astronomy

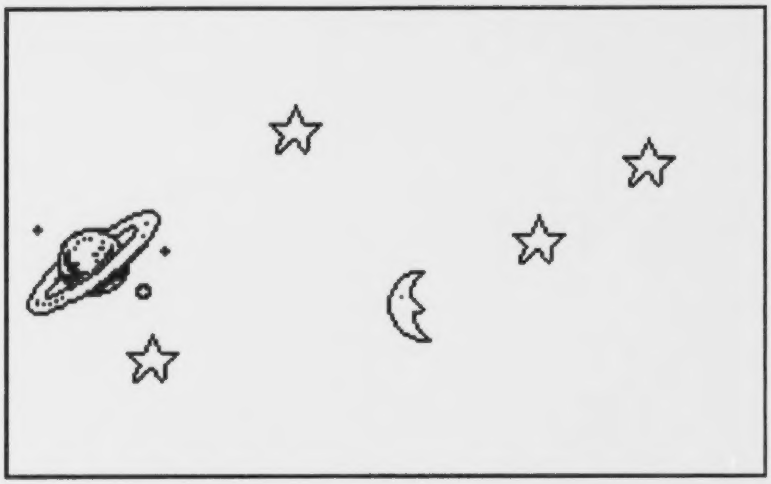
Place *HyperCard* in the background mode by selecting the **Background** option under the **Edit** menu, and create the background for a night sky. When you are finished, it should look something like the one in the next illustration. *(Important Note: It is important that the night sky backdrop be created in the background mode. You will be able to tell if you are in the background mode because the Menu bar of HyperCard will have diagonal slashes through it.)*



After you have created the background, shift back into the foreground mode by selecting the **Background** option from the **Edit** menu a second time. The **Background** option is a toggle; selecting it the first time places the user in the background mode, and selecting it the second time places the user into the foreground mode again.

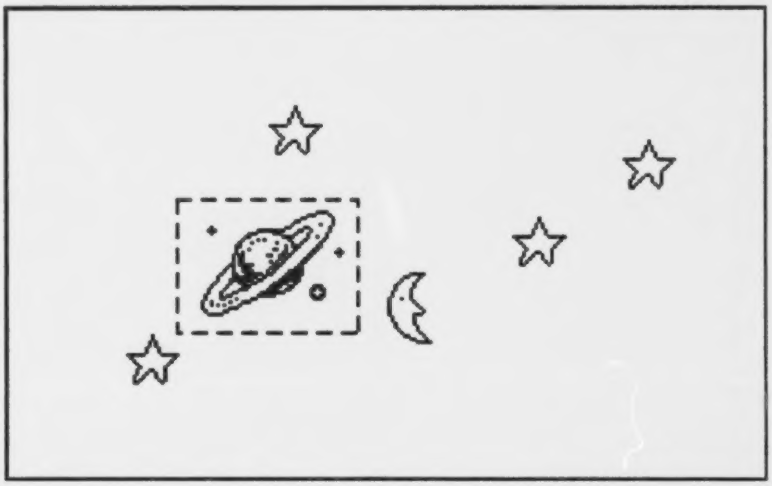
Once you are in the foreground layer again, the background layer is not affected by any of the tools you might use. To demonstrate this, select the Eraser tool and drag it across the stars you created. You will see that it has no effect on them as long you are not in the background mode.

Add a planet to the foreground of the card.



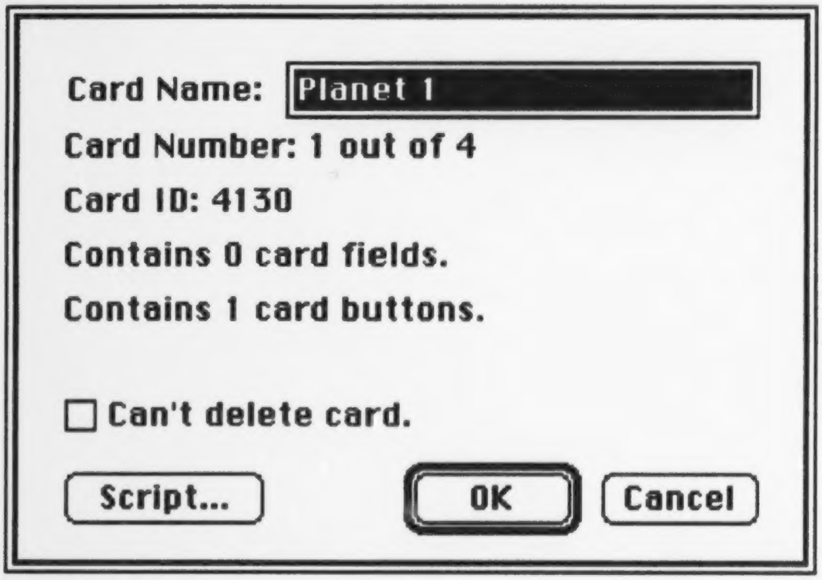
Then create a new card by selecting the **New Card** option under the **Edit** menu. When the **New Card** option is selected, you will find that the new card contains everything that is in the background of the previous card, including the stars and other background items, but not the planet added to the foreground of the previous card.

By moving the planet across the background of subsequent cards, an effect similar to that of animated films is achieved. Use the Select tool to copy the planet and move it to another location on the new card. The Arrow keys on the keyboard can be used to flip through several successive cards, or you can create a button that will automate the animation effect.



A button could also be created to automate the process of going from one card to the next. The result will be similar to that obtained in Chapter 2 on *HyperCard* buttons, in which cards were linked to one another to create the effect of a cork popping out of a champagne bottle. In this case a script will be created to achieve a similar result.

First select the **Card Info** option under the **Objects** menu to obtain the dialog box for the first card. Enter the name "Planet 1" for the card, as shown in the following illustration, and then click the **OK** button to close the dialog box.



Card Name: Planet 1

Card Number: 1 out of 4

Card ID: 4130

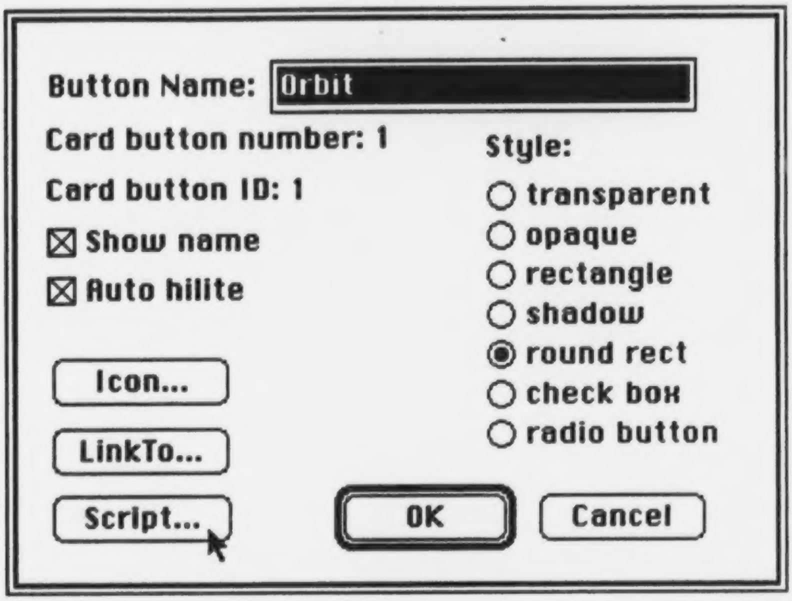
Contains 0 card fields.

Contains 1 card buttons.

☐ Can't delete card.

Then use the Arrow keys on the keyboard to go to the next card with the planet moved further along, and follow the same steps as above to enter the name "Planet 2" for this card. Continue the process for "Planet 3," and so forth, until each card has been assigned a different name.

The reason each card has been given a different name is so that it will be possible to refer to the cards in the script of a button that links the cards. Create a new button by selecting the **New Button** option under the **Objects** menu. Enter the name "Orbit" as the name of the button. Then click the **Script** button to go to the Scripting dialog box.



Button Name: Orbit

Card button number: 1

Card button ID: 1

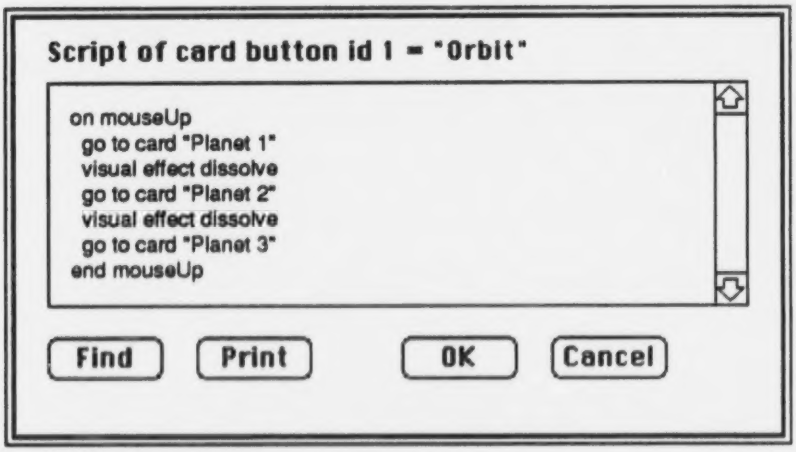
☒ Show name

☒ Auto hilite

Style:

○ transparent
○ opaque
○ rectangle
○ shadow
● round rect
○ check box
○ radio button

Enter the HyperTalk program shown in the Scripting box in the next illustration, placing it between the phrases "on mouseUp" and "end mouseUp." Be very sure that you have typed the commands exactly as shown. Even the smallest typographical error can cause your program to go astray and fail to work. Once you are sure the commands have been entered correctly, click the OK button at the bottom of the Scripting box. *Note: If you are using HyperCard 2.0, the Scripting box will have a slightly different appearance. Click the close box in the upper left corner to save your script if you are using HyperCard 2.0.*



Script of card button id 1 = "Orbit"

```
on mouseUp
  go to card "Planet 1"
  visual effect dissolve
  go to card "Planet 2"
  visual effect dissolve
  go to card "Planet 3"
end mouseUp
```

The HyperTalk script says to go to the first card, and then the second card, and finally to the third card automatically. A visual effect that causes one card to appear to dissolve into the next is also used in this script.

After you have saved your script and closed the Scripting dialog box, try the new HyperTalk program by clicking the Orbit button. The planet should appear to move across the screen as the program moves from one card to the next. *Troubleshooting Tip: It is important to spell the name exactly the same in the Card Info dialog box and in the script that refers to the card. If there is a problem, check to be sure that there is not a space in front of the word "Planet" in the Card Info dialog box. HyperTalk considers " Planet" (with a space in front of it) and "Planet" (no space) to be different:*

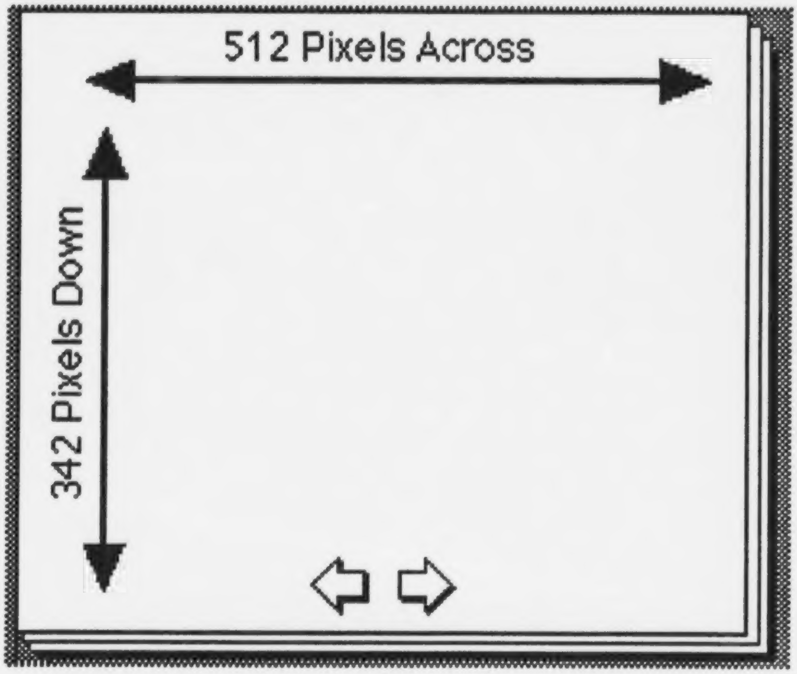
```
" Planet"
"Planet"
```

HyperCard will permit you to use the card number as well as the card name in scripts. Even though it does not make a difference to *HyperCard*, you will find that most people are able to follow your scripts more easily when you use the card name as a reference rather than a card number.

Another Form of Animation

The power of the computer makes another form of animation possible that cannot be achieved through film alone. This type of animation can be achieved on a single *HyperCard* screen rather than on several cards. It is made possible by the fact that everything but the object to be moved is in the background plane, while the planet is in the foreground plane.

An object in the foreground can be selected and moved across the screen with a *HyperCard* script. In order to move it, however, it is necessary to know the location of the object. A standard *HyperCard* screen is 512 pixels (picture elements) across, and 342 pixels down. *Note: This window size is fixed in Version 1 of HyperCard but can be varied in Version 2.*

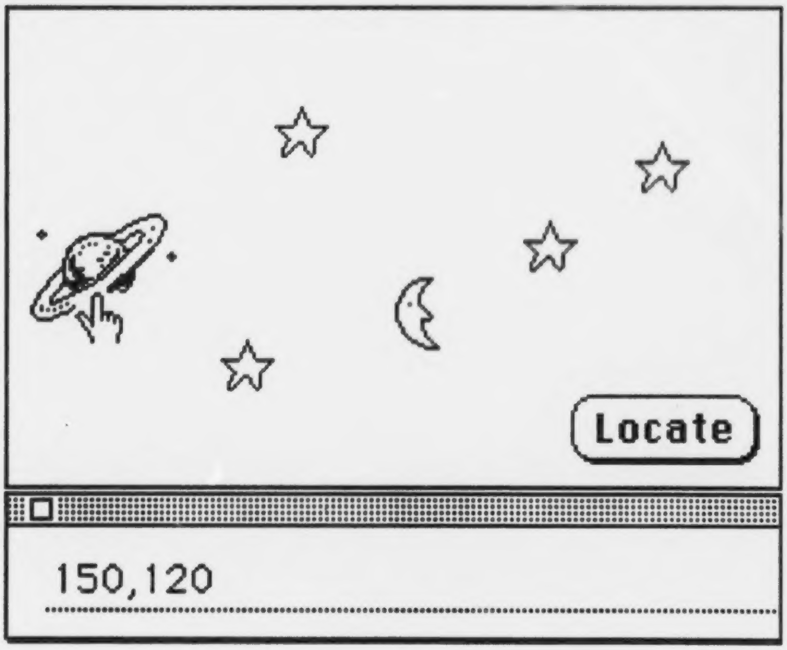


The following HyperTalk program will print the location of the Browse tool. This will allow the finger of the Browse tool to be placed on the planet to identify its location. First, create a new button called "Locate."

Type the following HyperTalk program into the script of this button. This script will place the location of the Browse tool in the Message Box until the mouse button is clicked a second time.

```
on mouseUp
  repeat until the mouseClick
  put the mouseLoc into the message box
  end repeat
end mouseDown
```

To identify the location of the planet in the foreground, first click the Locate button. Then place the fingertip of the Browse tool on the planet. The position of the planet will be displayed in the Message Box when the fingertip of the Browse tool is on the planet. In this case, the portion of the *HyperCard* screen shown in the following illustration indicates that the fingertip of the Browse tool is 150 pixels below the top of the screen and 120 pixels to the right of its left edge. *(Troubleshooting Tip: Your HyperCard card may display different pixel numbers.)*



```
150,120
```

Once you have located the position of the planet on your screen, click the mouse button a second time to terminate the Locate program. (It does not matter where the cursor is placed when the mouse button is pressed; any mouse click will end the Locate program.) The mouse can then be moved without the values in the Message Box changing. Close the Message Box when you are finished using the Locate button.

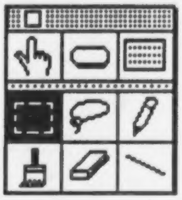
After the position of the foreground object has been located, a script can be created that will move the object across the screen. Create another new button called "Animate."

Create the following script for this new button. The numbers "150,120" in this script refer to the X and Y coordinates of the planet. In place of these numbers, substitute the location of the planet on your screen. The numbers "320,120" refer to the new location of the planet after it has been moved across the screen. Note that the second number (120) in this set of coordinates always stays the same, since the vertical position of the planet will not change. (If you want the vertical position to change, you could, of course, substitute a different number in place of 120 for the destination.)

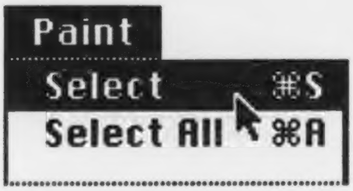
```
on mouseUp
  choose select tool
  doMenu "Select"
  set dragSpeed to 100
  drag from 150,120 to 320,120
  wait 20
  drag from 320,120 to 150,120
  choose browse tool
end mouseUp
```

To understand this new script, try doing it manually.

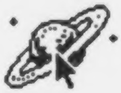
1. Choose the Select tool.



2. Then choose the **Select** option on the **Paint** menu.



3. The first two steps above will have the effect of selecting everything in the foreground plane. This will allow you to place the cursor in the middle of the planet and drag it across the screen.

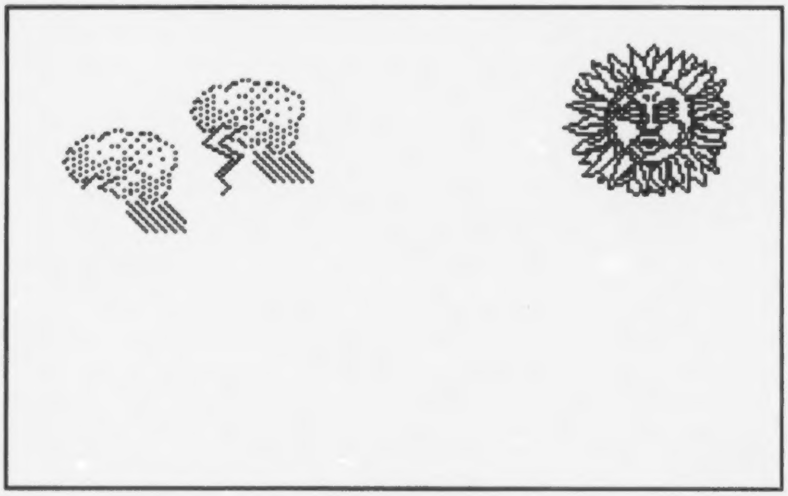


The program for the Animate button performs these three functions through a script. Otherwise the steps are the same. After the planet is moved across the screen, it pauses for a moment and then moves back to its original location. (If the planet were not returned to its original position, the Animate button would not work the second time it was used.) If you would like to slow down the movement of the planet, decrease the drag speed in the script of the Animate button. Similarly, you can make the planet move faster by choosing a larger number.

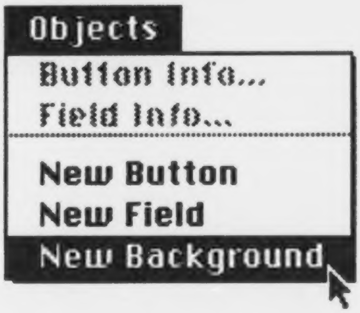
It is important to note that this animation method will move everything in the foreground plane. Therefore it will work most effectively when there is a single object, such as the planet, in the foreground and everything else is in the background.

Creating New Backgrounds

In an animated film, a background will remain constant for a number of frames and then change as a new scene appears. Similarly, in *HyperCard* there is a way to create a new background when one is required. For example, the night sky might shift to a daytime scene.



This is achieved by selecting the **New Background** option at the bottom of **Objects** menu. *(Important Note: The* **Objects** *menu will not be available if one of the Paint tools is selected. If the* **Objects** *menu is not visible on the Menu bar, select the Browse tool and it will appear.)*



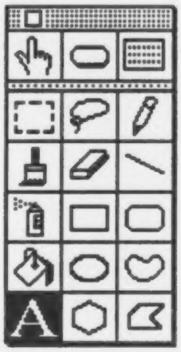
When you are in the background plane of *HyperCard* (as indicated by the slanting hash marks across the Menu bar), every change made affects all of the cards in the stack with that background. When the **New Card** option is selected, the new card will have the background of the card present at the time the new card was created.

HyperCard Database

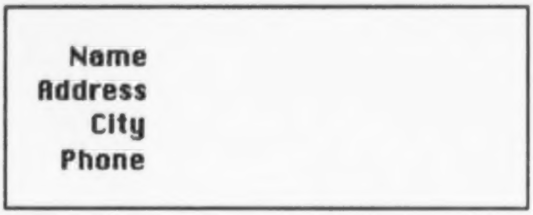
The examples described above use the metaphor of cels in an animated film to introduce *HyperCard* backgrounds. The next example will illustrate how the features of a *HyperCard* background can be used to construct a *HyperCard* database. The report-generation capabilities of *HyperCard* are not strong, and other restrictions limit its use as a substitute for a conventional database such as *Filemaker II*. However, it can easily be used to construct a set of electronic notecards that make up an address book, a catalog of a record collection, or a recipe file. In fact, these and similar ideas are listed under the Stack Ideas section of the *HyperCard* Home Card.

To begin, create a new card and then select the **Background** option under the **Object** menu to create a new background. The presence of the background mode will be evident because of the slanted hash marks on the Menu bar. It is important to remain in the background mode while the template for the address book is created.

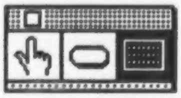
After the background mode has been entered, select the Paint Text tool. (It is the letter "A" in the lower left corner of the Tools palette.)



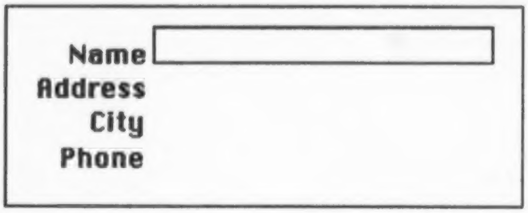
Double-click on the Paint Text tool to obtain access to the **Font** menu. Select the Chicago font from this menu, and then click **OK** to return to the *HyperCard* screen. Type in labels for "Name," "Address," "City," and "Phone." In Chapter 2, the rectangular Select tool was used to move the champagne cork. You can also use this tool to move labels created with the Paint Text tool. Use the Select tool to align the labels as shown below.



Once these labels have been entered, select the Field tool.



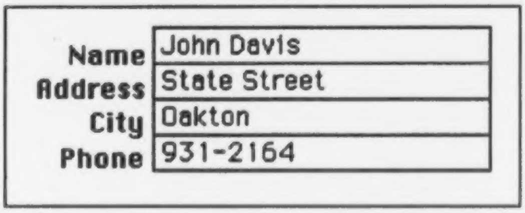
Then choose the **New Field** option under the **Objects** menu. After the new field has been created, double-click on the new field to obtain the **Field Info** options. Choose **rectangle** under the **Style** options on the **Field Info** menu. Then drag the newly created field into place beside the "Name" label, as shown below.



Create similar fields for "Address," "City," and "Phone." When you have completed the background for the note card, select the **Background** option under the **Edit** menu once more to enter the foreground mode again.

Entering Information Into the Address Book

Select the Browse tool and move the cursor to the "Name" field. Note that as the field is entered, a shift from the hand representing the Browse tool to an I-Beam cursor occurs. After the cursor enters the "Name" field, click once to enter the text entry mode. Then type in a name. After the name is entered, press the Tab key on the keyboard to go to the next field.

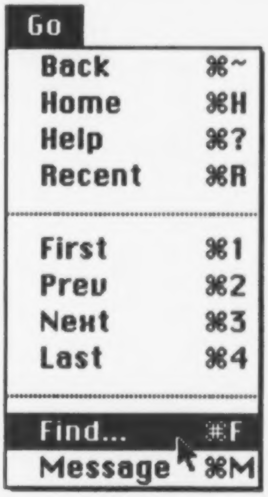


Name	John Davis
Address	State Street
City	Oakton
Phone	931-2164

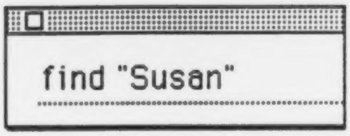
After the first notecard in the address book has been completed, select the **New Card** option under the **Edit** menu to create a new card. This produces a new card in the address book. Enter a second name and address on this card. Continue this process until three or four cards in the address book have been completed.

Using the Address Book

Once several cards have been entered, you will be able to search the address book for specific names. To do this, choose the **Find** option under the **Go** menu.

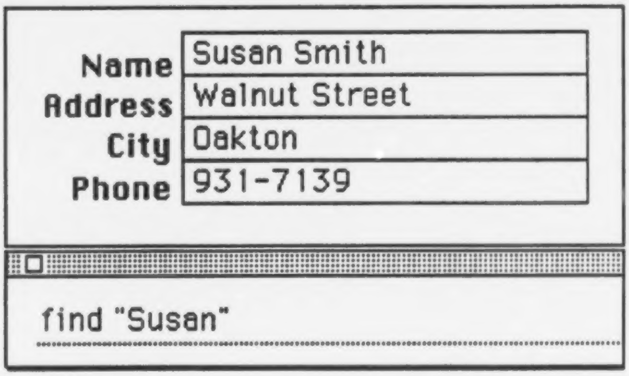


When the **Find** option is selected, type in the name of the person on the card you wish to locate, and press the Return key.



```
find "Susan"
```

HyperCard will take you to the card with the name you have selected.



Name: Susan Smith
Address: Walnut Street
City: Oakton
Phone: 931-7139

```
find "Susan"
```

Scripts for Cards

Thus far, commands to control fields have been placed in the scripts of buttons as well as in the scripts of fields. One other useful *HyperCard* script that automatically numbers cards can be placed in the script of the card itself. This application involves another use of background fields.

It is sometimes confusing to users when a copy of a card is made. Since the copy is an exact duplicate, there is nothing on the card itself to indicate that a new card has replaced the old one. The **Card Info** dialog box indicates the number of each card in the stack, but it takes an extra step to access this information.

To create a mechanism for displaying the page number of each card in a *HyperCard* stack, first create a background field named "Page Number."

☐ First select the **Background** option under the **Edit** menu. (You will know you are in the background mode when there are slanted hash marks across the Menu bar.)

☐ Then create a new field while the background mode is selected by choosing the **New Field** option under the **Objects** menu.

☐ With the Field tool selected, double-click on the new field to access the **Field Info** dialog box. Set the **Style** of the field to **transparent**. Enter the name "Page Number" in the **Field Name** box.

☐ Exit the **Field Info** dialog box. Drag the field to the upper right corner of the card, where a page number would ordinarily appear. Make the size of the field one line high and about three digits wide—just large enough to display the page numbers that will appear.

Then select the **Card Info** option under the **Objects** menu. When the **Card Info** dialog box appears, click the **Script** button. The Scripting box of the card should appear. Enter the following program as the script for the card. *(Troubleshooting Tip: It is important to type in the script **exactly** as shown. For example, if "into the background" is typed instead of "into background field," script text will not work. Also, if a line is so long that it runs off the edge of your screen, it will not automatically wrap to the next line. You need to hold down the Option key while you press Return to get the text to go to the next line and stay visible in the window. You should see the "continuation" symbol, shown in the following script, appear at the end of the line. Caution: Do not break your line in the middle of "quoted" material.)*

```
on openCard
  put the number of this card into background ¬
  field "Page Number"
end openCard
```

Then click the **OK** button. When you return to the main *HyperCard* screen, select the Browse tool in the Tools palette.

To try out the page-numbering script, use the following steps to make a copy of the card.

☐ Select the **Copy Card** option under the **Edit** menu on the *HyperCard* Menu bar.

☐ Once the **Copy Card** option has been used to place a copy of the card onto the *HyperCard* Clipboard, use the **Paste Card** option to paste a copy of the card back into the *HyperCard* stack.

When the new copy is pasted into the stack, the number of the card should appear in the "Page Number" field. Make a copy of the new card. Each time another copy is made, the page number reflected in the card field should change. *(Troubleshooting Tip: The openCard procedure must be in the script of **each** card in order for the number to appear on that card.)*

Summary

In the previous three chapters, the Browse tool, the Button tool, and the Field tool were introduced. Short scripts for buttons and fields served as an introduction to HyperTalk programming. In this chapter, *HyperCard* backgrounds were added to the list of available *HyperCard* objects. *HyperCard* backgrounds were used:

☐ As the basis for a form of animation.

☐ As the basis for a simple database.

In the next chapter, *HyperCard* will be considered from the perspective of the *HyperCard* stack as a whole.

Chapter 5. HyperCard Stacks

In the first four chapters, we discussed cards, buttons, fields, and backgrounds. In this chapter, we will discuss how these four design elements are combined to form a *HyperCard* stack.

A stack should have a consistent design. Each feature should work in the same way throughout the card. For example, if the Return Arrow is used to return to the previous menu from a card, this symbol should be used for the same function on other cards. This prevents users from becoming confused and assists them in their exploration.

The sample stack we will develop in this chapter is based on the famous story of Ulysses and the Cyclops, found in Chapter IX of Homer's *Odyssey*.

> *Oh Muse, tell me about the man, you know, the crafty one,*
> *who was hounded for so long after destroying the holy city of Troy.*

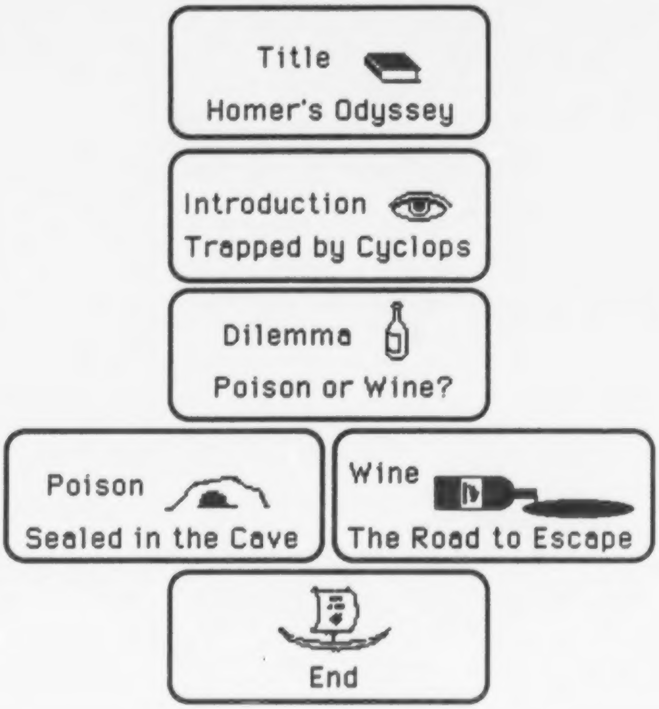
So begins one of the two greatest epics by the best epic poet. Some educational software based on literary classics is intended to be used in lieu of reading the original. However, that is not the underlying purpose of our Odyssey stack. In this case, we've adopted the model of an adventure game, and the educational purpose is motivation rather than direct instruction. Using the stack (playing the adventure game) is intended to introduce students to main characters and events and encourage them to return to a printed version of the *Odyssey* for more detailed information. Users who make the same decisions that Homer's Ulysses made are rewarded by the gods! Teachers could use this activity as an introduction to a unit on the *Odyssey*, epic poetry, or heroes in mythology.

In the section from the *Odyssey* we have selected, Ulysses and his men have been captured by an evil, one-eyed giant named Polyphemus. Those who have read the book will be familiar with the clues needed to escape this cyclops. The illustration we are going to develop in this chapter is a fragment of what could become a larger stack. Once you understand the design principles for the basic stack, you will be able to add to the stack on your own or adapt the template for other applications.

The Story Line

It is often helpful to sketch out the cards of a stack on notecards. Since *HyperCard* is based on the metaphor of electronic notecards, paper notecards can simulate the stack that will be created later. Some teachers pin the notecards to a bulletin board and use string or strands of yarn to simulate links between different cards.

We will use six cards in the stack we will develop. Naming cards is an important element in stack design. Naming cards carefully makes it possible to refer to cards during stack development, and it also makes it easier to debug the stack when scripts are written. The first card in our stack will be the "Title" card. This will be followed by an "Introduction" card that describes the plight of Ulysses. He and his men have been trapped by a one-eyed cyclops. The third card describes the "Dilemma" they face. Should they offer the Cyclops Ciconian wine or give him poison? The fourth and fifth cards, "Poison" and "Wine," respectively, describe the consequences of those possible actions. If the Cyclops is poisoned, Ulysses will be trapped because only the Cyclops is strong enough to roll the boulder away from the mouth of the cave. Wine is a better choice that will lead to escape. (Students who have read the book will know which choice the real Ulysses made.) The sixth card is the "End" card, which describes where to find out more about Ulysses.



Chapter IX of the *Odyssey*, from which this sketch is taken, is much longer, of course, and could be illustrated by dozens of cards detailing different events that take place. The six cards in this example illustrate a method that can be extended to encompass a longer segment of the story.

The Design

It is important to develop an overall design for a stack. Certain design elements present on every card unify the stack. For example, the Home stack has the outline of a stack of cards in the background. This design helps establish the metaphor that a *HyperCard* application is a deck of electronic cards. Left and Right Arrow buttons are placed at the bottom of the Home Card to provide the user with an obvious means of moving through the stack.

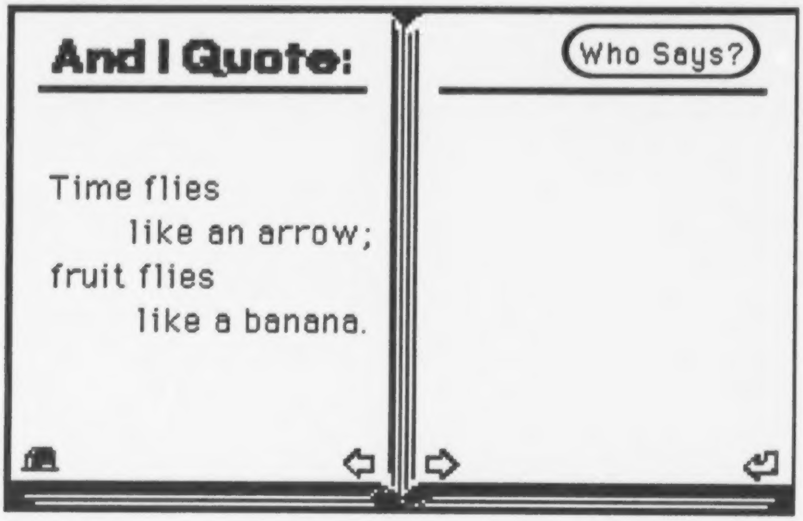
Since the *Odyssey* is a book, we are going to adopt that as the underlying design for this stack. If you are using Version 1 of *HyperCard*, you can make use of resources already in *HyperCard* to create the image of a book for the background. If you are using Version 2 of *HyperCard*, you can use the Line and Brush tools to sketch the image of a book in the background.

Creating a Background in HyperCard 1.0

If you are using *HyperCard* 1.0, go to the Home stack, and click the Quotations icon on the Home Card. *If you are using HyperCard 2.0, skip to the next section.*

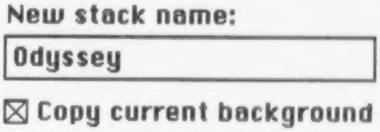
Quotations

This icon will take you to a "book" of quotations. The one shown below is attributed to Groucho Marx.



Time flies
like an arrow;
fruit flies
like a banana.

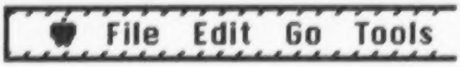
The design of the Quotations stack can serve as the starting point for an Odyssey stack, and several of the design elements can be incorporated into a new stack. While you are in the Quotations stack, create a new stack, using the **New Stack** option under the **File** menu. Be sure that the **Copy current background** option is checked, so that the background of a book and other design elements of the Quotations stack will be copied into your new stack.



New stack name: Odyssey

☒ Copy current background

Once you are in the new stack, adapt the design elements to your new application. Select the **Background** option under the **Edit** menu. You will know when you are in the background mode because slanted hash marks will appear on the Menu bar.



Once you are in the background mode, make the following changes.

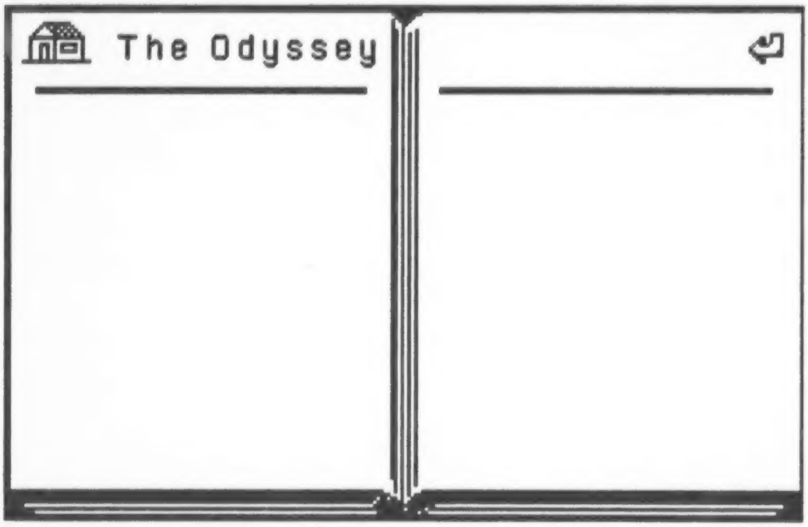
☐ Use the Eraser tool to erase the "And I Quote" text at the top of the left-hand page.

☐ Then use the Paint Text tool to place the title "The Odyssey" in the same place.

☐ Next choose the Button tool and delete three of the background buttons: the Left Arrow button, the Right Arrow button, and the Who Says? button. (To delete a button, click once on the button to select it and then press the Delete key.)

☐ Finally, move the Home button and the Return Arrow from the bottom of the screen to the top.

When you are finished, select the **Background** option on the **Edit** menu a second time to toggle out of the background mode. The slanted hash marks on the Menu bar should disappear to indicate that you are out of the background mode. The redesigned template should now look like this:

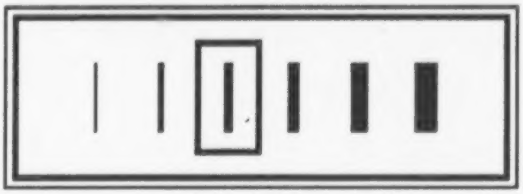


Once you complete the template, you can skip over the next section and go directly to the section entitled "Design Elements."

Creating a Background in HyperCard 2.0

If you are using *HyperCard* 2.0 or if you would like to try your hand at creating your own book image, you can use the Paint tools to sketch in the background described in the preceding section. First create a new stack. Then select the **Background** option under the **Edit** menu. When you are in the background mode, hashmarks across the Menu bar at the top of the screen will be visible.

Then use the Paint tools to create the background. Use the Rectangle tool to create the border of the book around the outside edges of the card. Then use the Line tool to create a vertical line in the center of the book. If you double-click on the Line tool, a menu will appear that will allow you to select different line widths.



The hardest part of the book design is the arc at the top and bottom of the book center that define the book's gutter (the place where the pages meet in the middle). You can create arcs by first using the Circle tool to draw a circle. Then use the Selection tool to divide the circle into four quadrants that can be used as the arcs.

At the bottom of the book, white lines on a black background define additional pages of the book. You can use the Pencil tool to create these lines. If you hold down the Shift key before you start moving the pencil in a horizontal direction, it will constrain the line you draw so that it is always straight.

You can create the Return Arrow by creating a button and selecting the Arrow icon in the manner discussed in Chapter 2, "HyperCard Buttons." This button should have the following script:

```
on mouseUp
  visual effect iris close
  pop card
end mouseUp
```

Create a Home button in the same fashion. It should have the following script:

```
on mouseUp
  go home
end mouseUp
```

Once you have sketched in the image of a book with the Paint tools and have added the Return Arrow and Home buttons to the background, select the **Background** option on the **Edit** menu a second time to toggle out of the background mode. The slanted hash marks on the Menu bar should disappear to indicate that you are out of the background mode.

Design Elements

There are three important design elements on the background of this card.

☐ The Home button provides the user with a way to return to the Home Card at any time. It is always important to provide the user with a way to exit an application. Applications that trap the user, giving them no obvious way to leave, can be described as "unfriendly" at best. The script of the Home button accompanied that button when it was taken from the background of the Quotations stack.

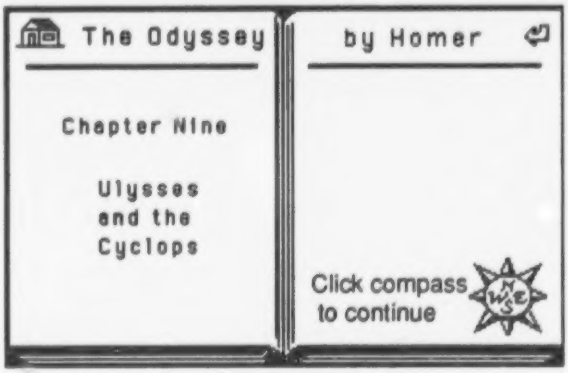
☐ The Return button provides a second background element. This will provide users with a way to return to previous cards in case they wish to refresh their memory about what has gone before.

⏎

☐ The outline of an open book is the third design element. Since it is on the background, it will appear on every card.

Card 1: Title

Once the template is complete, you are ready to create the title page. Here is what ours looked like:



The Odyssey

by Homer

Chapter Nine

Ulysses
and the
Cyclops

Click compass
to continue

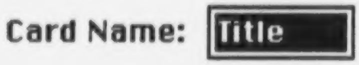
Use the Paint Text tool to enter the remaining text on the title page. Don't worry about the Compass button for now; it will be created later.

Naming the Card

In the past four chapters you have connected cards by using the **LinkTo** option in the **Button Info** dialog box. Naming cards provides the user with a more advanced option for linking cards that will later make it easier to follow and debug the stack. Give the first card a name by selecting the **Card Info** option under the **Objects** menu.

Shortcut: If you are using one of the Paint tools, you will need to select the Browse tool before the ***Objects*** *menu will appear. A quick way to select the Browse tool is to hold down the Command key and press the Tab key once. A similar keyboard shortcut can be used to select the Button tool and the Field tool. Hold down the Command key and press Tab twice to select the Button tool; hold down the Command key and press Tab three times to select the Field tool.*

Enter the name "Title" in the **Card Info** dialog box and click **OK**.

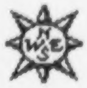


Card Name: Title

In this application, card names will provide important stack development aids.

Creating a Link to the Next Card

After you have entered the card name and card text, you can create the Compass button shown in the lower right corner of the card.



This button will provide the basic navigation tool for moving from card to card in the stack. To create the Compass button, select the **New Button** option under the **Objects** menu. Then, with the Button tool selected, go to the **Button Info** dialog box by double-clicking on the button. Select **transparent** as the **Style**, and make sure that the **Show name** option is not selected. This will create a transparent button that will show only the icon.

While you are still in the **Button Info** dialog box, click the **Icon** option. This will take you to a screen of button icons. Scroll through the icons until you see the Compass. Click on the Compass to select it, and then click **OK**. Drag the Compass button to the lower right corner of the card.

Next, create the script for the Compass button that will take the user to the next card. With the Button tool still selected, double-click on the Compass button to return to the **Button Info** dialog box. When you reach the **Button Info** dialog box, enter the following script. Be sure you enter the script exactly as shown. Do not worry about the fact that the Introduction card has not been created yet. It will be developed in a moment.

```
on mouseUp
   push card
   visual effect wipe left slowly
   go to card "Introduction"
end mouseUp
```

In previous lessons you have linked cards together by using the **LinkTo** option in the **Button Info** dialog box. The script shown above provides a more powerful method of going to another card. It contains three commands.

☐ The "push card" command makes a note of the current card so that the Return button will know where to return if the user decides to come back to this card.

☐ The "visual effect" command creates a more sophisticated visual transition to the next card.

☐ The "go to card" command specifies the name of a card rather than a number. This makes finding problems in stacks (debugging) considerably easier.

Once you are sure you have entered the script correctly, click OK. The Compass button will not work until you create the "Introduction" card. You are now ready to create that card.

Card 2: Introduction

Select the **New Card** option under the **Edit** menu. Use the **Card Info** option under the **Objects** menu to access the **Card Info** dialog box. Enter "Introduction" as the name of the new card.

Card Name: Introduction

The left page of the book contains a field in which text can be entered. Type in the following information in that field. (When the Browse tool is selected, the hand will change to an I-Beam as the cursor enters the field. Click once to select the insertion point and begin typing.)

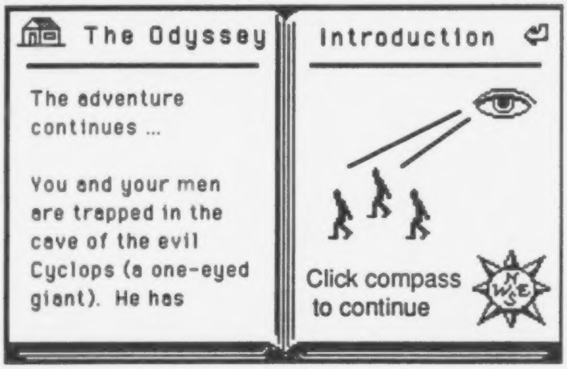
```
The adventure continues ...

You and your men are trapped in the cave of the
evil Cyclops (a one-eyed giant). He has placed an
enormous boulder across the mouth of the cave.

How will you escape?
```

This introduction lets the reader know that this stack begins in the middle of an adventure. It also describes the predicament facing Ulysses and his men. The right page can be used for an illustration. We chose to show the single eye of the Cyclops watching Ulysses' men. The silhouette of the men in this picture was copied from the People card of the Art Ideas stack. (The Art Ideas stack can be accessed from the Home Card.) The eye came from the Symbol card of the same stack. You can use your own graphic design, or even wait to add this illustration until later if you wish.

Our completed Introduction card looked like this. Don't worry about the fact that you do not have a Compass button on your Introduction card yet. That will be developed in a moment. *Note: Not all of the text of the introduction is shown in this illustration.*



The Odyssey

The adventure continues ...

You and your men are trapped in the cave of the evil Cyclops (a one-eyed giant). He has

Introduction

Click compass to continue

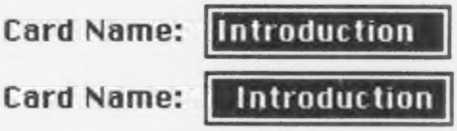
Successive Approximation

Use the **Go Prev** option under the **Go** menu to return to the previous card. Then try out the Compass button on the Title card to see if it takes you to the Introduction card.

Troubleshooting Tip: If the Compass button does not work:

☐ *Be sure that the script is typed exactly as it is shown above.*

☐ *Also be sure that the name of the card and the name typed in the script match exactly. For example, if there is a space in front of the name on the card, the script will not work. The two card names in the following illustration are not the same because the second one has a space in front of it and the first one does not.*



Card Name: Introduction

Card Name: Introduction

There is an extremely important stack development principle that states, "Work in small steps." This makes it easier to locate problems. It is better to identify any problems with the Compass button now rather than later, after four more cards have been made.

If the Compass button works and takes you from the Title card to the Introduction card, try the Return button in the upper right corner. Did it take you back to the previous card? The Return button will not work properly until the Compass button has been used. The Compass button places a bookmark in the stack to mark your previous location. The Return button uses that bookmark to return there.

Transferring the Compass Button

If the Compass button works properly, return to the Title card. Choose the Button tool, and then click once on the Compass button to select it. Go to the **Copy Button** option on the **Edit** menu to copy the button. Then return to the Introduction card and select the **Paste Button** option to paste the button onto the Introduction card.

This method of pasting the Compass button onto the Introduction card ensures that the button will be in the same location as on the previous card. However, you will have to edit the script of the Compass button on the Introduction card so that it will take the user to the proper location. The name of the next card will be "Dilemma." Go to the **Button Info** dialog box of the Compass button and click the **Script** option. When you are in the script of the Compass button, change the card name in the "go to" command from "Introduction" to "Dilemma." The revised script of the button on the second card will look like this:

```
on mouseUp
   push card
   visual effect wipe left slowly
   go to card "Dilemma"
end mouseUp
```

Using the previous Compass button as a template saves time. However, be sure that the master copy works properly before additional copies are made.

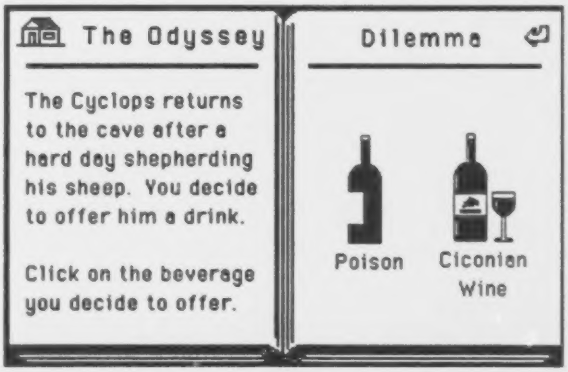
Card 3: Dilemma

After the Compass script has been altered, create a new card and name it "Dilemma." Enter the following text in the field on the left side of the page:

```
The Cyclops returns to the cave after a hard day
shepherding his sheep. You decide to offer him a
drink.

Click on the beverage you decide to offer.
```

Our card looked like this:



The Cyclops returns to the cave after a hard day shepherding his sheep. You decide to offer him a drink.

Click on the beverage you decide to offer.

We copied a wine bottle and a "poison" bottle from the Food card of the Art Ideas stack. Create this illustration now (either through clip art or by drawing your own) and label the bottles. These pictures will be needed for the buttons that will be created next.

Links to Cards 4 and 5

Until now, each card has led only to the next one. At this point, there are two choices: poison and wine. One choice will lead to Card 4, while the other will lead to Card 5. *HyperCard* makes it easy to provide different choices. This method could as easily be used for multiple-choice questions.

Create an invisible button and place it over the poison bottle. Enter the following script for the button.

```
on mouseUp
  push card
  go to card "Poison"
end mouseUp
```

Create a second invisible button and place it over the wine bottle. Enter this script for that button.

```
on mouseUp
  push card
  go to card "Wine"
end mouseUp
```

Card 4: Poison

Next create a new card named "Poison." (Name the card in the **Card Info** dialog box.) Enter the following text in the field on the left page of the card.

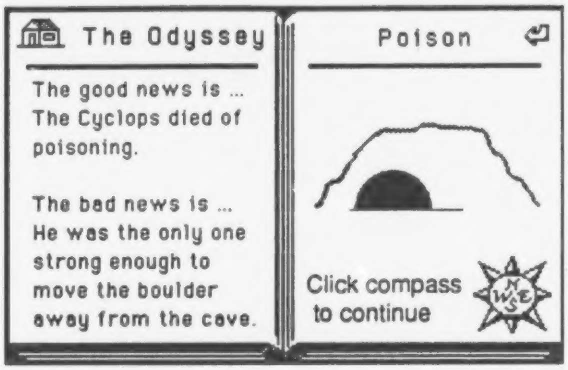
```
The good news is ...

The Cyclops died of poisoning.

The bad news is ...

He was the only one strong enough to move the
boulder away from the cave.
```

Our card looked like this. We drew the cave with the Paint tools. You can add an illustration of your choice now or wait until later.



The good news is ... The Cyclops died of poisoning.

The bad news is ... He was the only one strong enough to move the boulder away from the cave.

Copy a Compass button from one of the preceding cards and modify the Compass script so that it reads:

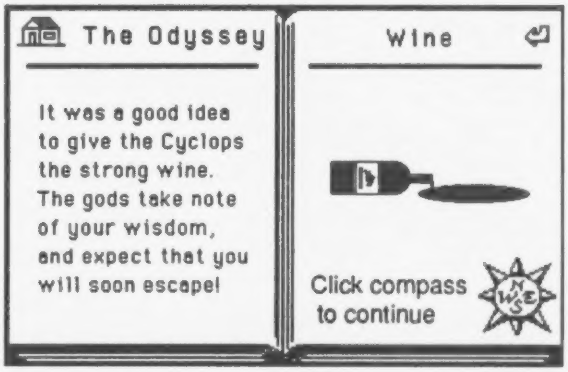
```
Go to card "End"
```

Card 5: Wine

After the Poison card has been completed, create another new card and name it "Wine." (Name the card in the **Card Info** dialog box.) Enter the following text on the left page of the card.

```
It was a good idea to give the Cyclops the strong
wine. The gods take note of your wisdom, and ex-
pect that you will soon escape!
```

Our Wine card looked like this. You can create this illustration now or wait until later.



It was a good idea to give the Cyclops the strong wine. The gods take note of your wisdom, and expect that you will soon escape!

Copy the Compass button from the preceding Poison card and paste it onto the Wine card.

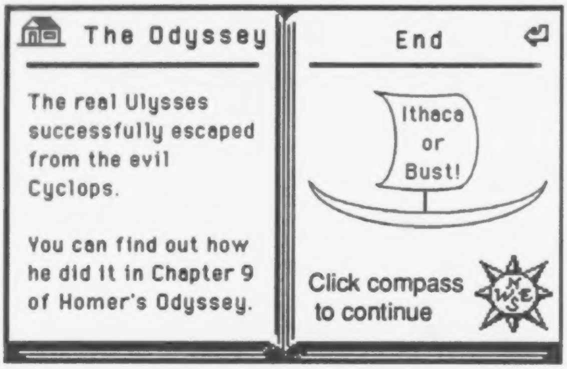
Card 6: End

Create the last card in the stack and assign it the name "End." Enter the following text on the left page of the card.

```
The real Ulysses successfully escaped from the
evil Cyclops.

You can find out how he did it in Chapter 9 of
Homer's Odyssey.
```

The "End" card we made looked like this. We created the boat with Paint tools.



The real Ulysses successfully escaped from the evil Cyclops.

You can find out how he did it in Chapter 9 of Homer's Odyssey.

Copy a Compass button from the preceding card and paste it onto the End card. Modify the script of this button so that the "Go to" command reads:

```
Go to card "Title"
```

This will allow users to return to the Title card in the stack if they click on the Compass button on the last card.

The Open Stack Command

In this stack the Title card is also the first card. The card you want to appear when the stack is opened may not always be the first card in the stack. You can move a Title card from the middle of the stack to the beginning by using the **Cut Card** and **Paste Card** commands. However, there is a simple way to ensure that a specified card always appears first when a stack is opened.

To ensure that this will always be the case even if other cards are later inserted in front of the Title card, select the **Stack Info** option under the **Objects** menu. When the **Stack Info** dialog box appears, click the **Script** button to go to the stack script. When you are in the stack script, first erase any other scripts that may be present. (If any scripts are present, they will have been copied along with the background of the Quotations stack.) Then enter the following script.

```
on openStack
   go to card "Title"
end openStack
```

This script will ensure that when the stack is opened, *HyperCard* will always go to the Title card.

Debugging and Beta Testing

Each piece of the stack should be tested as it is developed. Once the six cards that constitute the basic structure of the stack have been completed, it is possible to try out the combined elements. Go through the stack and try the different options. Select the choice of Poison on one try, and select the option of Wine on the next. Try the different Return buttons, and make sure the Home button works.

You and friends who may have watched you develop the stack are *alpha testers*. Once you are sure that everything works properly, it is time to try it out with users who have never seen the stack before. These users are known as *beta testers*. Frequently you will be surprised to find that users who are not aware of assumptions that underlie the stack will find problems you had not identified. Resist the temptation to explain how the stack works. Just watch, and note any difficulties that new users encounter.

Hypermedia and Hypertext

Once the basic design is debugged and working properly, any number of enhancements are possible. A book is generally read in a linear fashion, proceeding from the first page to the last without deviation. An electronic medium offers many more possibilities. Pop-up text fields can provide additional information about key words and concepts, and buttons can be added to permit exploration in different directions.

For instance, Homer had much more to say about the race of Cyclops, describing them as rustic one-eyed barbarians who did not grow crops and had no laws. A pop-up text window could provide additional information if the user clicks on the word "Cyclops." The word "dilemma" comes from the Greek root meaning "two assumptions." Hypertext makes it easy to provide additional information about the derivation of the word if the reader wants it, without interfering with the flow of the narrative for those who wish to pursue the storyline.

Other embellishments can enhance the stack. A map of the ancient world showing the route Ulysses took on his epic journey could be useful. Different artists' conceptions of the Cyclops might be an interesting diversion, which could lead to a discussion of the probability that such a race could exist. Excursions in the areas of biology, archeology, or poetry might evolve. Parallels between Homer's epic poem and the later poem *Ulysses*, by Tennyson, can be studied.

Hypermedia involves the ability to go from one point in a medium to another point without leafing through intervening cards or pages. The ability to click on a *HyperCard* button and go directly to a related graphic, illustration, or card is a form of hypermedia. *Hypertext* is a specialized variant of hypermedia that involves a similar ability to go from one point in a text to another point. Pop-up text windows provide a kind of hypertext in *HyperCard*.

With conventional media it would be necessary to have a thesaurus, a dictionary, a biology text, an archaeological reference work, and other materials at hand as the *Odyssey* was read. *HyperCard* can be used to incorporate all of these materials into a single application. The degree of elaboration depends on the creativity of the developer.

Adapting the Template

The six cards outlined in this sample stack are just a starting point. There are many other branch points that might be incorporated into the plot line, rewarding users who make the same choices that the real Ulysses made. For example:

☐ What type of wood should be used to create a spear to blind the Cyclops? (Those concerned about violence in the cinema might be startled at the levels of violence in the classics.)

☐ What reply does Ulysses give when the Cyclops asks his name? (Ulysses said his name was "No Man," a ploy that figured prominently in his later escape.)

☐ What trick does Ulysses use to get past the blinded and enraged Cyclops at the mouth of the cave?

With minimal changes, the same template could be adapted for other stories. The underlying concept would work as well for *Huckleberry Finn* as for the *Odyssey*. (What should Tom Sawyer tell Aunt Polly? How can Huck and Jim escape the Duke?)

Instructional Strategies

The first impulse of a teacher might be to create elaborate and lengthy hypermedia applications for a class. However, even a modest *HyperCard* stack is time consuming to develop. Many teachers do not have the spare time for creating an appreciable number of hypermedia applications developed in any great depth.

An alternative to is to involve the class in development of the hypermedia application. It is true that the class will not know *HyperCard*. However, students can develop the design on notecards and use a bulletin board to chart the development of the stack design. If there are artists in the class, they can be assigned to create pictures and graphics. Others can be taught to enter text in *HyperCard* fields.

As much or more is learned in the creation of an educational stack as in the use of it. It will be necessary for members of the class to go to the library to consult references and resource documents. Are there other references to the Cyclops from ancient times? Who was Homer? What is the oldest copy of the *Odyssey*? Who translated it, and where is it found? The thesaurus, the dictionary, the encyclopedia, and reference works will be needed to answer these questions. It may be necessary to use the interlibrary loan system to get some references, or an interview with a local authority may be helpful.

Collaboration and cooperation among members of the class will be required since a project of this kind is often too large for any one person. The class will then have an "electronic book report" that can be shared with others.

HyperCard projects are frequently like gardening—there's seldom a sharply defined end because there's always a link to another bit of knowledge. The stack created by one class can be used as the foundation for continuation by another class the next year. The actual use depends upon the guidance and facilitation the teacher provides.

Summary

In the first four chapters, the basic elements of *HyperCard* were introduced: cards, buttons, fields, and backgrounds. Short scripts for buttons and fields served as an introduction to HyperTalk programming.

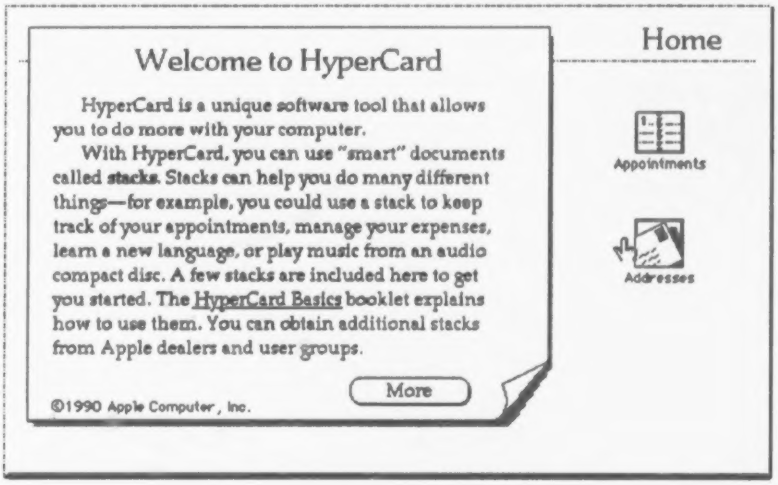
In this chapter, these elements were combined to create a *HyperCard* stack. The most important aspects of stack design take place away from the computer. Notecards can be used to design the stack before it is created on the computer. Resources from other stacks can be incorporated into the development of a new stack. Each component should be tested as it is developed so that the stack is built through a series of successive approximations. The stack should later be tested with other users to identify unexpected problems.

Ulysses had great difficulty with navigation. It took him many years to return home. Your users should never be in doubt about where they are in your stack and should be able to return home with the click of a single button.

Appendix. Version 2 of HyperCard

When *HyperCard* was introduced in 1987, Apple provided a copy with every Macintosh sold. Over the years this led to development of a very large user base with *HyperCard*. In essence, everyone with a Macintosh also had *HyperCard*, whether the owner used it or not. As a result, it was possible to give a *HyperCard* stack to almost anyone with a Macintosh with a reasonable assurance that he or she would be able to run it.

Over time, minor improvements were made to the original *HyperCard* program, and Versions 1.1, 1.2, and 1.3 were released. Apple dealers in most cases provided these upgrades free of charge to users with *HyperCard*. In the fall of 1990, Version 2 of *HyperCard* was released. Unlike Version 1, Version 2 of *HyperCard* is being provided in several different formats. A basic version with only two stacks and no documentation is still being included with each Macintosh sold. The Home Card of this version looks like this:



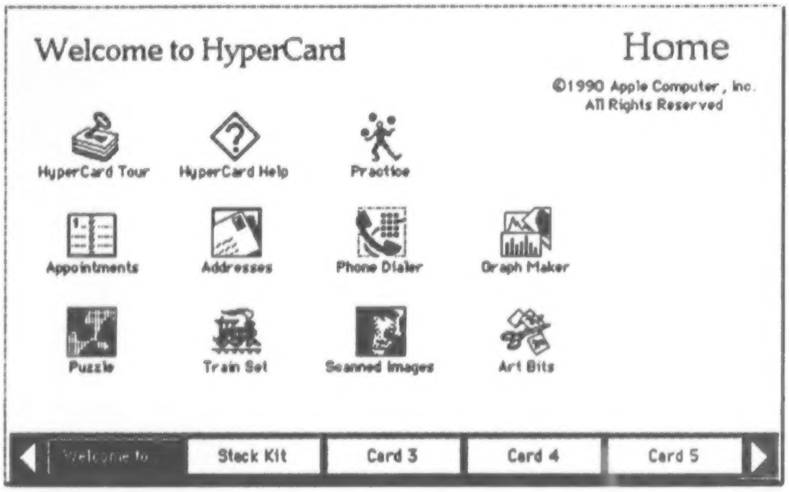
Welcome to HyperCard

HyperCard is a unique software tool that allows you to do more with your computer.

With HyperCard, you can use "smart" documents called **stacks**. Stacks can help you do many different things—for example, you could use a stack to keep track of your appointments, manage your expenses, learn a new language, or play music from an audio compact disc. A few stacks are included here to get you started. The HyperCard Basics booklet explains how to use them. You can obtain additional stacks from Apple dealers and user groups.

©1990 Apple Computer, Inc.

The copy of Version 2 of *HyperCard* that is bundled with each Macintosh can be upgraded to another version that has documentation and additional stacks. This upgrade is being handled by a software subsidiary of Apple called Claris. Claris will also assume responsibility for future development and enhancement of *HyperCard*. The additional stacks provided with the upgraded version sold by Claris have a number of useful tools and examples that are helpful to have. However, even the bundled version provided free with each Macintosh has all of the capabilities of Version 1 and many additional enhancements as well. The Home Card for the upgraded version of *HyperCard* sold by Claris looks like this.

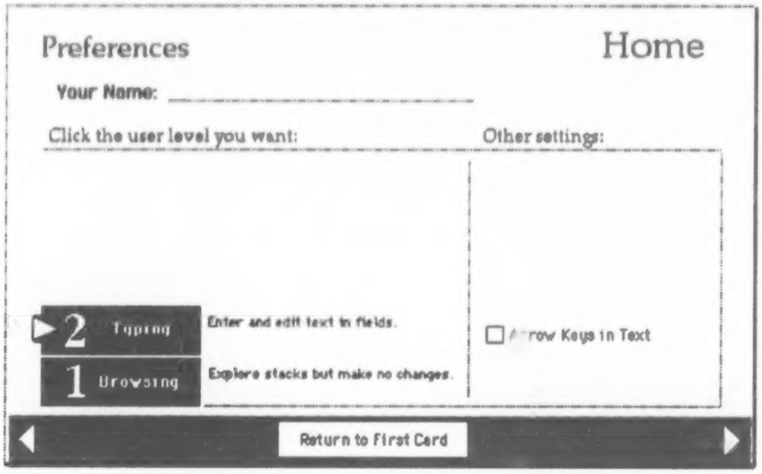

Welcome to HyperCard
Home
©1990 Apple Computer, Inc.
All Rights Reserved
HyperCard Tour
HyperCard Help
Practice
Appointments
Addresses
Phone Dialer
Graph Maker
Puzzle
Train Set
Scanned Images
Art Bits
Welcome to
Stack Kit
Card 3
Card 4
Card 5

The copy of Version 2 now included with new Macintoshes is initially set to User Level 2, which only permits browsing and typing. This sometimes creates the incorrect impression that full authoring capabilities are not available. However, the following instructions explain how to set the user level of the bundled copy of Version 2 to User Level 5, providing access to the full authoring and scripting capabilities of all versions of *HyperCard*.

Setting the User Level for the Bundled Version of HyperCard 2.0

If you have a version of *HyperCard* 2.0 that was included (or "bundled") with your Macintosh, the following section describes how to set the User Level so that you have access to the full capabilities of *HyperCard*. If you are the first person to use the *HyperCard* program in this version, the User Preferences card may look like the preferences card shown below. Because only the first two levels are initially shown, this sometimes creates the incorrect impression that this version of *HyperCard* does not have the full capabilities of previous versions. However, there is a way to set the Preferences card to User Level 5 in this version as well, even if all of the user levels are not shown initially.

To set the preferences level in *HyperCard* 2.0, first use the Left Arrow on the keyboard to go to the User Preferences card.

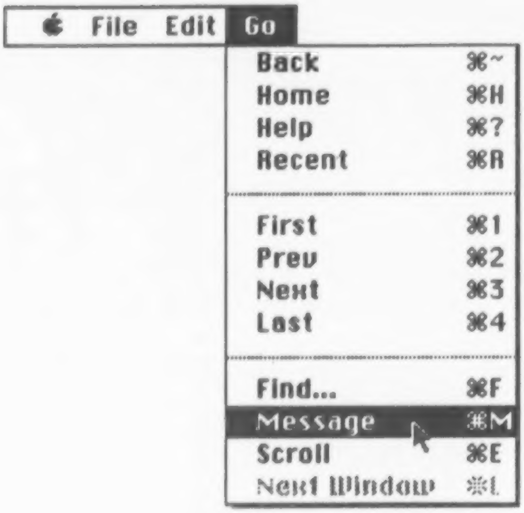


Enter and edit text in fields.

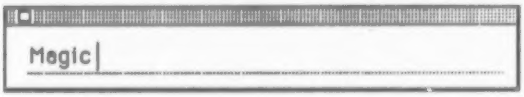
Explore stacks but make no changes.

☐ Arrow Keys in Text

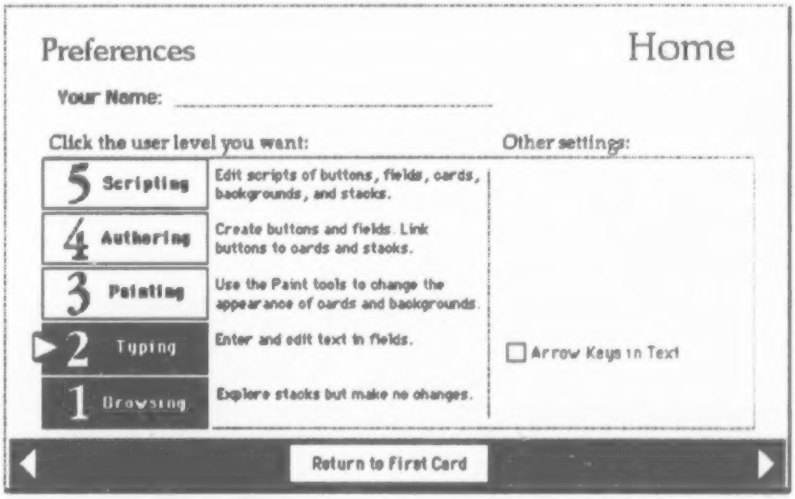
Above the User Preferences card you should see a Menu bar with several options, such as **File**, **Edit**, **Go**, and so forth. (If the Menu bar is not visible, you can toggle it on by holding down the Command key and pressing the spacebar.) Place the cursor on the **Go** option on the Menu bar, and press the mouse button. The **Go** menu will appear. Continue to hold the mouse button down as you drag the cursor down to the **Message** option on the **Go** menu. When the cursor is on the **Message** option on the **Go** menu, release the mouse button.



When you select the **Message** option on the **Go** menu, a Message Box will appear at the bottom of the screen. The Message Box provides a location to type messages and commands that are sent to *HyperCard*. When the Message Box appears, type the word "Magic" and press the Return key.


Magic

After the word "Magic" is typed in the Message Box, levels 3 through 5 will appear on the User Preferences card (as if by magic). *(Troubleshooting Tip: You must be at the User Preferences card before typing "Magic" in the Message Box.)*


Preferences

Home

Your Name:

Click the user level you want:

5 Scripting — Edit scripts of buttons, fields, cards, backgrounds, and stacks.

4 Authoring — Create buttons and fields. Link buttons to cards and stacks.

3 Painting — Use the Paint tools to change the appearance of cards and backgrounds.

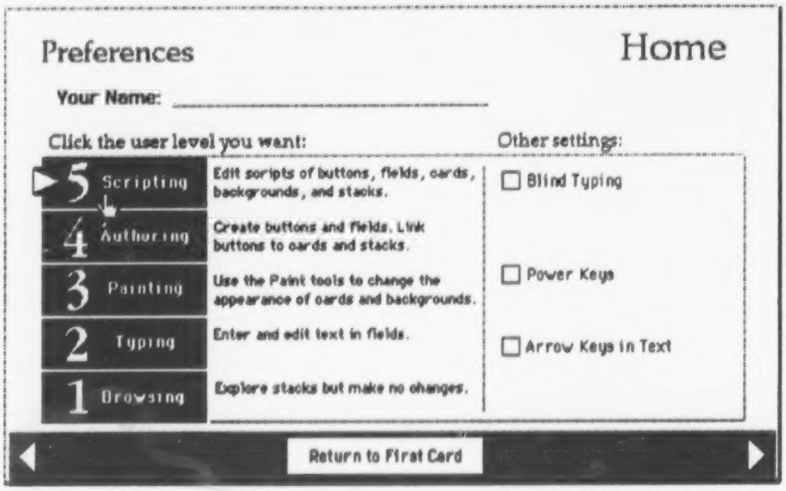
2 Typing — Enter and edit text in fields.

1 Browsing — Explore stacks but make no changes.

Other settings:

☐ Arrow Keys in Text

After the additional user levels appear on the User Preferences card, click the level 5 (**Scripting**) box to select the highest level of development capabilities.



Preferences

Home

Your Name: ____________________

Click the user level you want:

5	Scripting	Edit scripts of buttons, fields, cards, backgrounds, and stacks.
4	Authoring	Create buttons and fields. Link buttons to cards and stacks.
3	Painting	Use the Paint tools to change the appearance of cards and backgrounds.
2	Typing	Enter and edit text in fields.
1	Browsing	Explore stacks but make no changes.

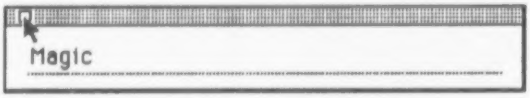
Other settings:

☐ Blind Typing

☐ Power Keys

☐ Arrow Keys in Text

After you no longer need the Message Box, you can put it away by clicking the Close Box in its upper left corner.



Magic

Then click the Return to First Card button or press the Right Arrow key to return to the Home Card.

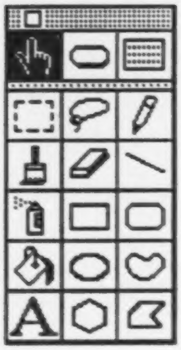
Enhanced Features of HyperCard 2.0

HyperCard 2.0 has a number of features that are not available in Version 1 of *HyperCard*. If you do not have Version 2, you can obtain it from Claris for about $50. If you already have Version 2, you may wish to learn about the basic features of *HyperCard* common to both versions before going on to learn about the enhancements discussed in this Appendix.

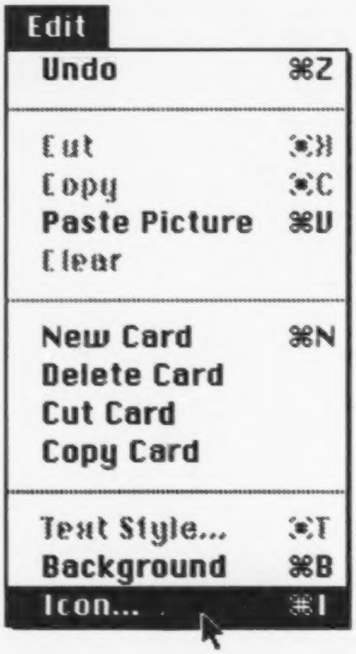
Enhancements for Buttons

One of the most welcome enhancements in Version 2 of *HyperCard* is the inclusion of an Icon Editor. This will allow you to create your own icons for buttons. Commercial programs, such as *Icon Factory*, can be purchased to edit icons in Version 1 of *HyperCard*. However, an upgrade to Version 2, which has a built-in Icon Editor, can be made for less than the cost of a commercial Icon Editor for Version 1.

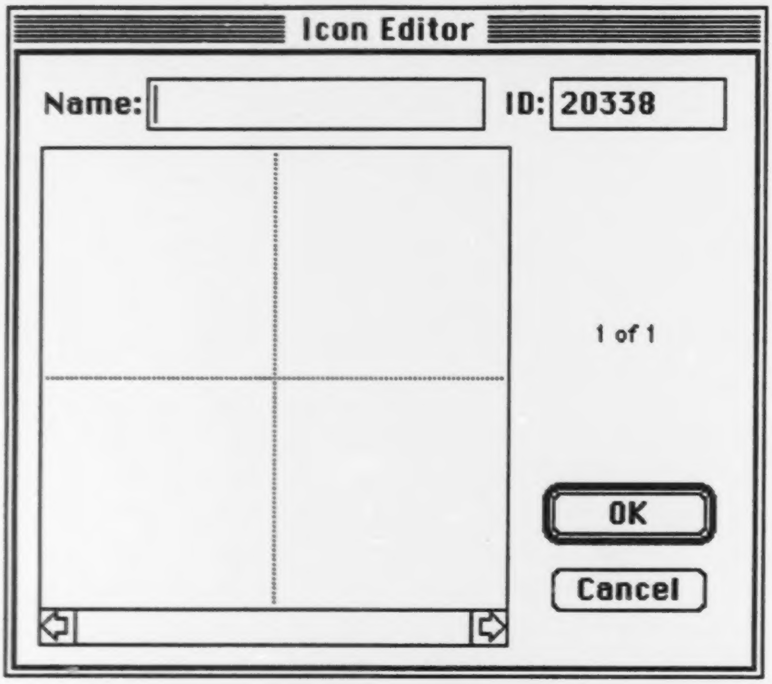
Suppose you wanted to create a *HyperCard* button with the image of a can of spray paint. *HyperCard* does not have an icon with this image, but it is easy to create one. First pull down the Tools palette, which has a picture of a spray paint can. *Important Note: In order to access the Tools palette, the User Level must be set to 5 (Scripting). See the section entitled "Setting the User Level for the Bundled Version of HyperCard 2.0" in the first part of this appendix if the* ***Tools*** *option is not visible on the Menu bar at the top of the screen.*



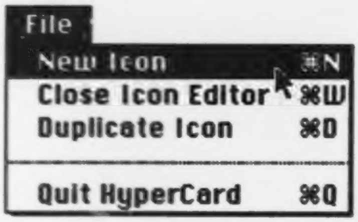
Then select the Icon option on the Edit menu.


Edit
Undo ⌘Z
Cut ⌘X
Copy ⌘C
Paste Picture ⌘V
Clear
New Card ⌘N
Delete Card
Cut Card
Copy Card
Text Style... ⌘T
Background ⌘B
Icon... ⌘I

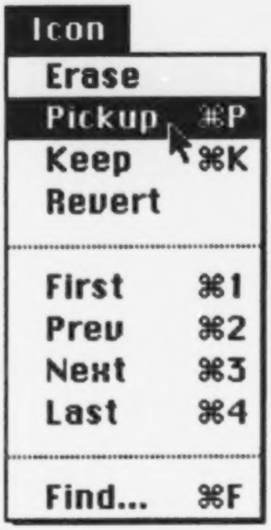
This will cause the palette containing the Icon Editor to appear.


Icon Editor
Name:
ID: 20338
1 of 1
OK
Cancel

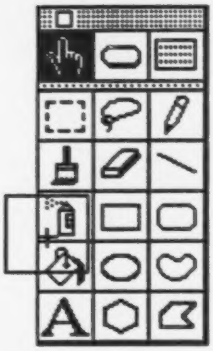
To create a new icon, select the New Icon option under the File menu in the Icon Editor.


File
New Icon ⌘N
Close Icon Editor ⌘W
Duplicate Icon ⌘D
Quit HyperCard ⌘Q

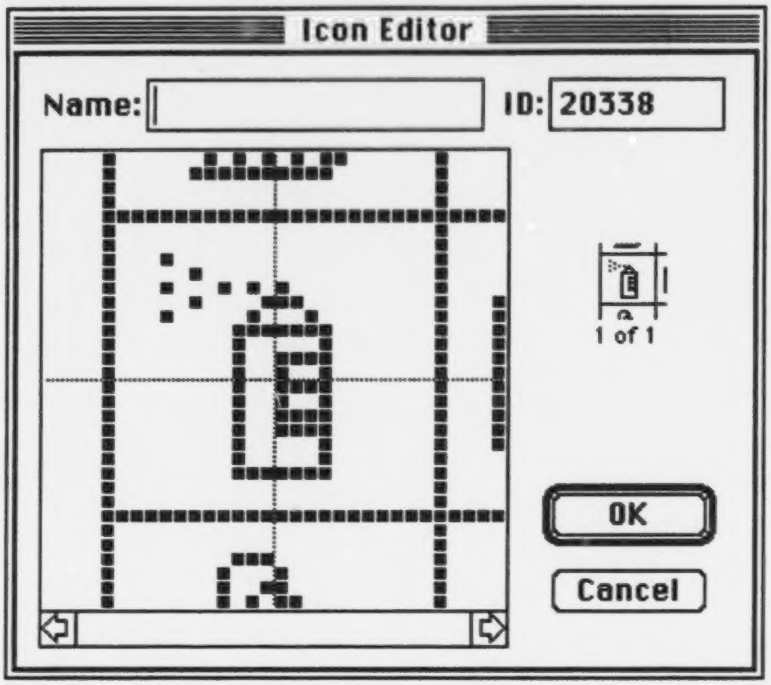
It would be possible to create the icon from scratch, but it will be easier to start with a copy of an existing image. To pick up an existing image, select the PickUp option on the Icon menu at the top of the screen.


Icon
Erase
Pickup ⌘P
Keep ⌘K
Revert
First ⌘1
Prev ⌘2
Next ⌘3
Last ⌘4
Find... ⌘F

When the **Pickup** option is selected, the cursor will change to a square with a crosshair in the center. Place the crosshair over the picture of the can of spray paint on the Tools palette.



Then hold the mouse button down and adjust the crosshair until the image is in the center of the editing area of the Icon Editor. When the image is positioned properly, release the mouse button.



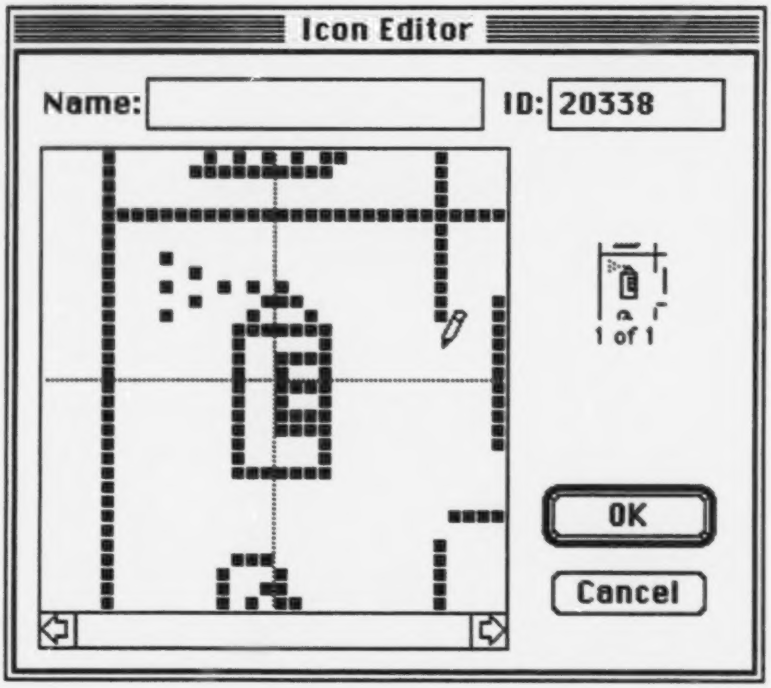
Icon Editor

Name:

ID: 20338

1 of 1
OK
Cancel

Use the Pencil tool to erase the pixels in the picture that are not part of the spray paint can.



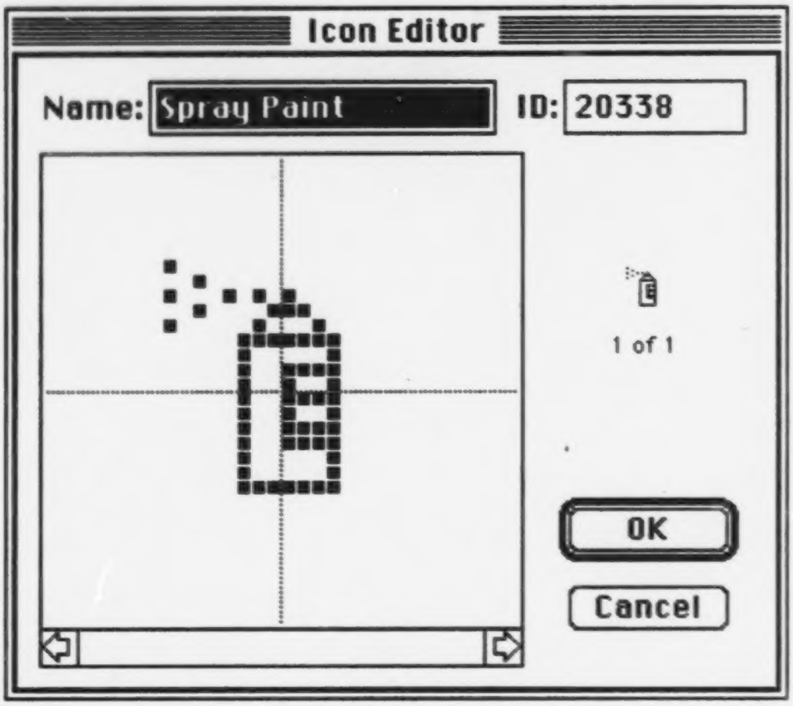
Icon Editor

Name:

ID: 20338

1 of 1
OK
Cancel

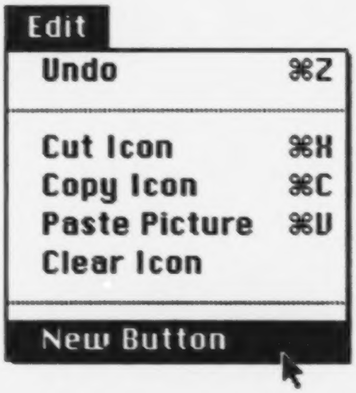
When only the image of the spray paint can remains, type in the phrase "Spray Paint" to give the icon a name.


Icon Editor
1 of 1
OK
Cancel

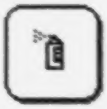
Name: Spray Paint

ID: 20338

To create a new button that contains the icon, select the **New Button** option under the **Edit** menu in the Icon Editor.

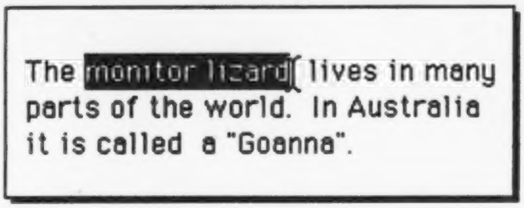

Edit
Undo ⌘Z
Cut Icon ⌘X
Copy Icon ⌘C
Paste Picture ⌘V
Clear Icon
New Button

If you like, you can then choose any style you want for the new button.



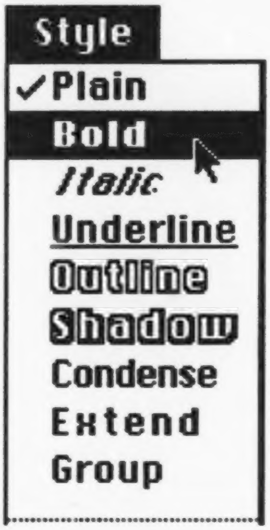
Enhancements for Fields

One of the significant enhancements in Version 2 of *HyperCard* is the ability to have more than one style of text within the same field. In the third chapter, there is a description of methods for creating hypertext that allow the user to click on a word to learn more about it. Without a way to highlight a word, however, the user may be at a loss to determine which words can provide more information. In Version 2, it is possible to mark the word or phrase with a different style. First, highlight the text to be changed.

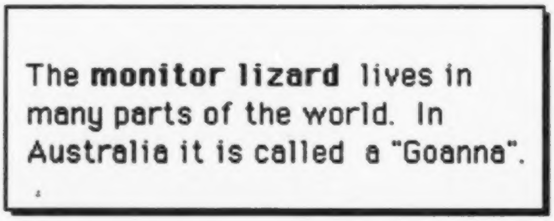


The monitor lizard lives in many parts of the world. In Australia it is called a "Goanna".

Then select the desired.style on the **Style** menu on the Menu bar at the top of the screen. (Addition of the **Style** menu was one of the enhancements added in the new version of *HyperCard*.)



The selected text will then be formatted in the new style.

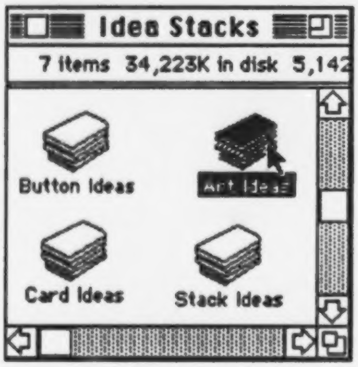


The **monitor lizard** lives in many parts of the world. In Australia it is called a "Goanna".

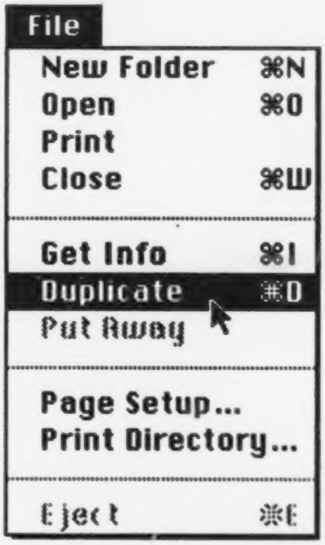
Converting Version 1 Stacks to Version 2 Format

The chances are that at some point you will want to convert a Version 1 *HyperCard* stack to the Version 2 format. For example, if you already were using Version 1 of *HyperCard* and upgraded to Version 2, you may wish to continue to use some of the clip art in the Art Ideas stack. The Art Ideas stack is more useful than ever, especially since the smaller images can now be converted to icons with the Icon Editor.

The most important thing to know about converting a stack from Version 1 format to Version 2 format is that it is not possible to reverse the process. *Therefore you should always work with a copy of the stack.* To make a duplicate copy, leave *HyperCard* and return to the Macintosh desktop. Highlight the stack to be copied by clicking it once.

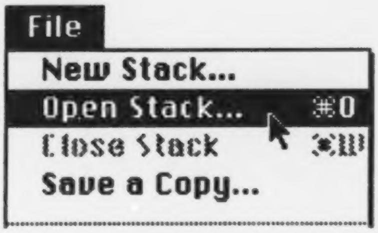

Idea Stacks
7 items 34,223K in disk 5,142
Button Ideas
Art Ideas
Card Ideas
Stack Ideas

Then select the **Duplicate** option under the **File** menu.

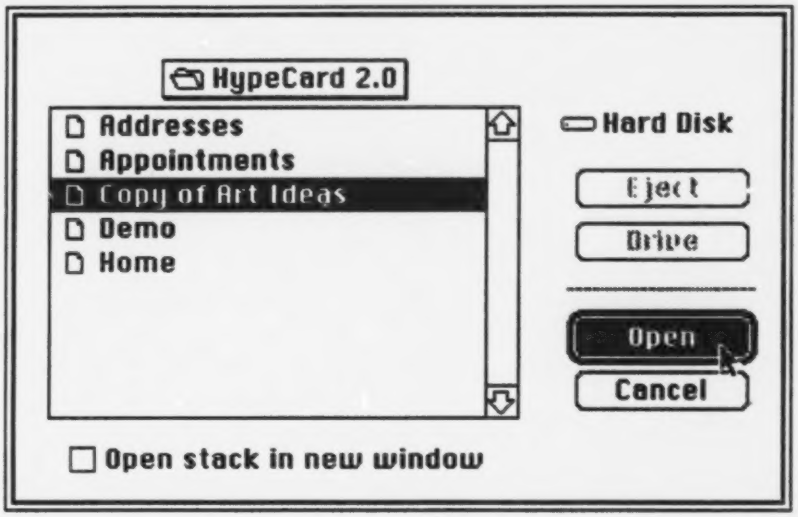

File
New Folder ⌘N
Open ⌘O
Print
Close ⌘W
Get Info ⌘I
Duplicate ⌘D
Put Away
Page Setup...
Print Directory...
Eject ⌘E

Once you have made a copy of the stack to be converted, drag it into the *HyperCard* 2.0 folder. Once you have moved the duplicate into the *HyperCard* 2.0 folder, you can rename the copy if you like.

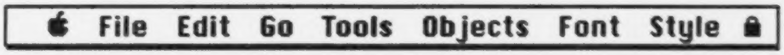
Then return to *HyperCard* 2.0 and open the duplicate stack by selecting **Open Stack** from the **File** menu.


File
New Stack...
Open Stack... ⌘O
Close Stack ⌘W
Save a Copy...

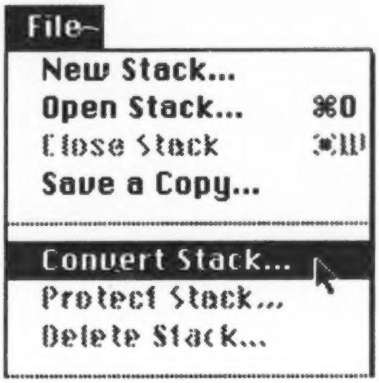
Then highlight the stack to be opened and click the **Open** button in the dialog box that subsequently appears.


HypeCard 2.0
Addresses
Appointments
Copy of Art Ideas
Demo
Home
Hard Disk
Eject
Drive
Open
Cancel
☐ Open stack in new window

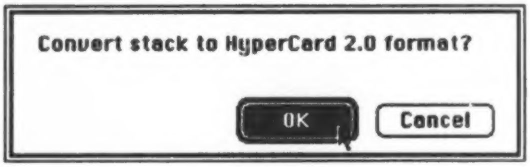
When a *HyperCard* 1.0 stack is opened from within Version 2 of *HyperCard*, a lock will appear at the right side of the Menu bar to show that the stack cannot be altered until it is converted to the Version 2 format.


File Edit Go Tools Objects Font Style

Select the **Convert Stack** option under the **File** menu.



A dialog box, which asks if you wish to convert the stack to the *HyperCard* 2.0 format, will appear. Select **OK** in response.


Convert stack to HyperCard 2.0 format?

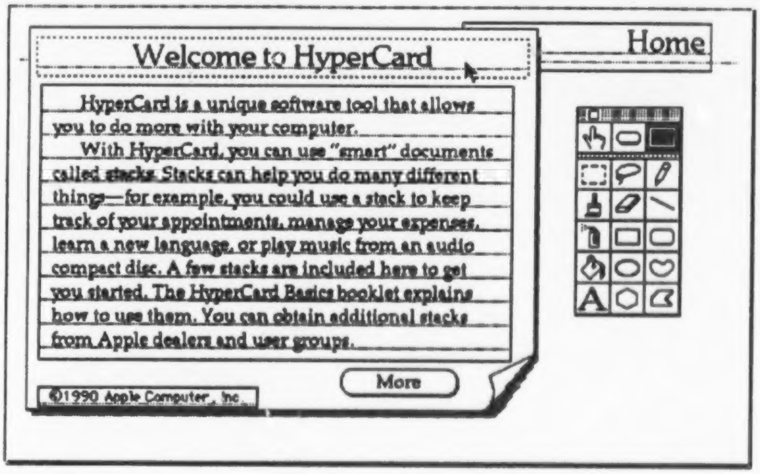
After the conversion process, the lock on the Menu bar will disappear, indicating that the stack is now in the new format.

Customizing the Home Card

If you have been using *HyperCard* 1.0 and now have *HyperCard* 2.0, you may want to transfer some of the features that were on the *HyperCard* 1.0 Home Card to the *HyperCard* 2.0 Home Card. For example, the *HyperCard* 1.0 Home Card has an Art Ideas button that can be clicked to access sample art ideas. If you have converted the Art Ideas stack to *HyperCard* 2.0 format (as described in the preceding section), you can add a button that makes it possible to access this clip art from the *HyperCard* 2.0 Home Card.

If you are using the basic *HyperCard* 2.0 program supplied with all Macintoshes since fall, 1990, the first step is to remove the Welcome notice from the Home card so that the entire card is available for your use. The Welcome notice simply informs you that an upgraded version of *HyperCard* 2.0 with documentation and sample stacks can be purchased from Claris to replace the free version that was bundled with your Macintosh. Therefore, it is not needed after you have read it once. (If you are using the upgraded version of *HyperCard* 2.0, which does not include this Welcome notice, you can skip to the next section on adding buttons to the Home Card.)

First select the Field tool in the top row of the *HyperCard* Tools palette. When you do this, the lines of the *HyperCard* fields in the Welcome notice will appear. Then place the cursor on the phrase "Welcome to *HyperCard*" and click once. A dashed line will surround the rectangle of the field to indicate that it has been selected. Then select the **Cut Field** option under the **Edit** menu to delete the field.

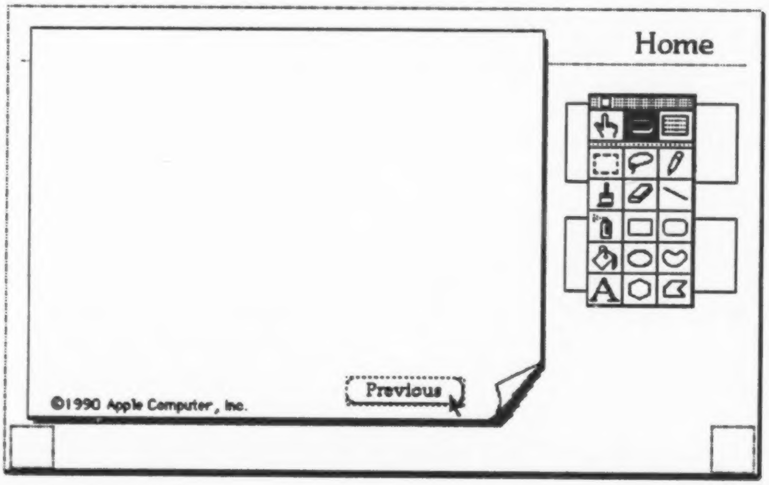


HyperCard is a unique software tool that allows you to do more with your computer.

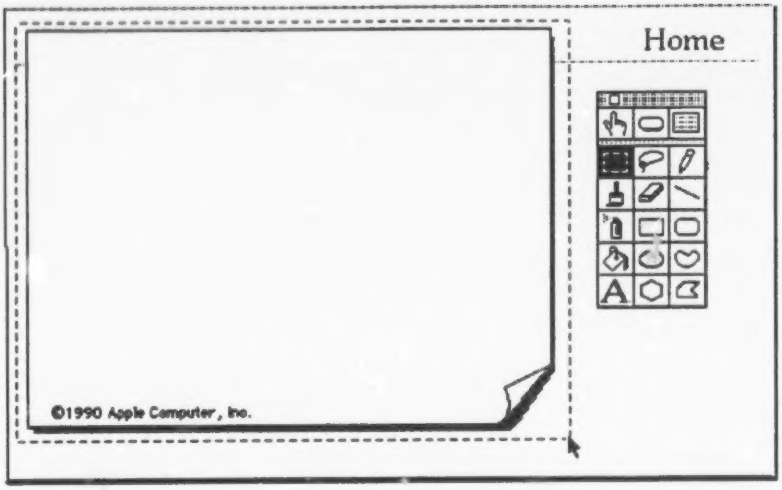
With HyperCard, you can use "smart" documents called stacks. Stacks can help you do many different things—for example, you could use a stack to keep track of your appointments, manage your expenses, learn a new language, or play music from an audio compact disc. A few stacks are included here to get you started. The HyperCard Basics booklet explains how to use them. You can obtain additional stacks from Apple dealers and user groups.

Repeat the process to delete the main text field on the Welcome notice. Then select the Browse tool (the hand icon) on the Tools palette, and click the More button once. A second text field will appear. Reselect the Field tool on the Tools palette, and follow the deletion procedure to remove this field as well.

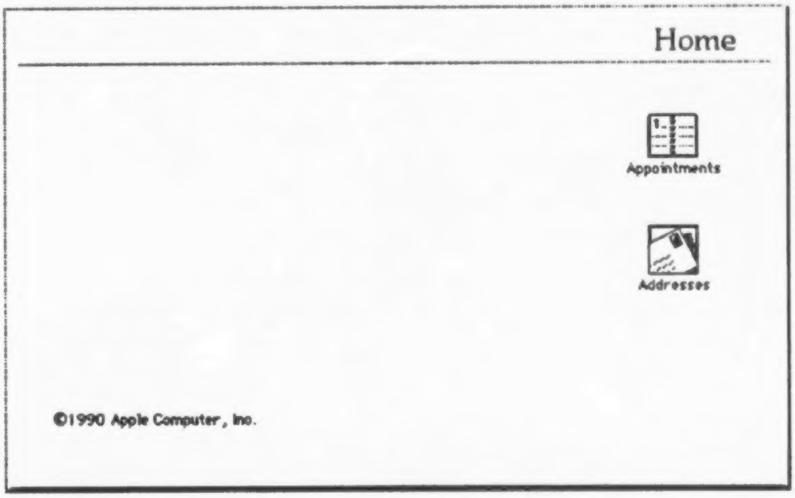
Once you have removed the text fields from the Welcome notice, select the Button tool in the top row of the Tools palette. Then click the Previous button (in the bottom right corner of the Welcome notice) once to select it. A dashed rectangle will surround the button to indicate that it has been selected. Once the button has been selected, choose the **Cut Button** option on the **Edit** menu to delete the button.



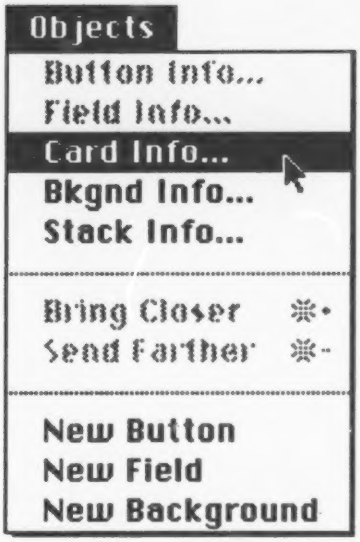
After the fields and button on the Welcome notice have been removed, all that remains is to remove the paint that comprises the outline of the note itself. To do this, first choose the Selection tool (the dashed rectangle) on the second row of the Tools palette. Then place the crosshair of the cursor at upper left corner of the Welcome notice, and hold the mouse button down while dragging the cursor diagonally across the note to the lower right corner. When the entire note has been surrounded by the dashed rectangle of the Selection tool, release the mouse button. Then choose the **Cut Picture** option on the **Edit** menu to remove the outline of the note.


Home
©1990 Apple Computer, Inc.

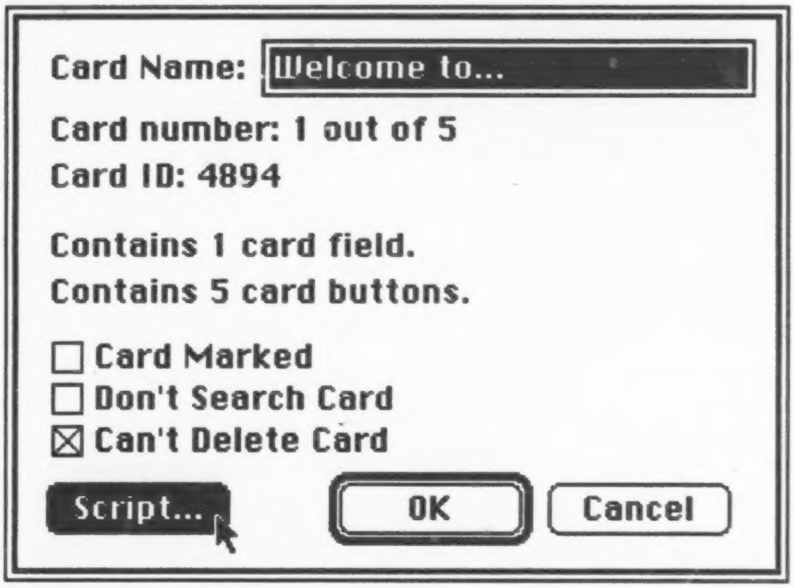
When you are finished, the entire space of the Home Card will be available for customization with your own buttons.


Home
Appointments
Addresses
©1990 Apple Computer, Inc.

One more change is needed to complete the alteration process. A procedure in the CloseCard script now refers to fields and buttons that no longer exist. This will generate an error message when leaving the card if the script is not removed. To go to this script, select the **Card Info** option under the **Objects** menu.


Objects
Button Info...
Field Info...
Card Info...
Bkgnd Info...
Stack Info...
Bring Closer ⌘+
Send Farther ⌘-
New Button
New Field
New Background

When the subsequent **Card Info** dialog box appears, click the **Script** button.



Card Name: Welcome to...

Card number: 1 out of 5

Card ID: 4894

Contains 1 card field.

Contains 5 card buttons.

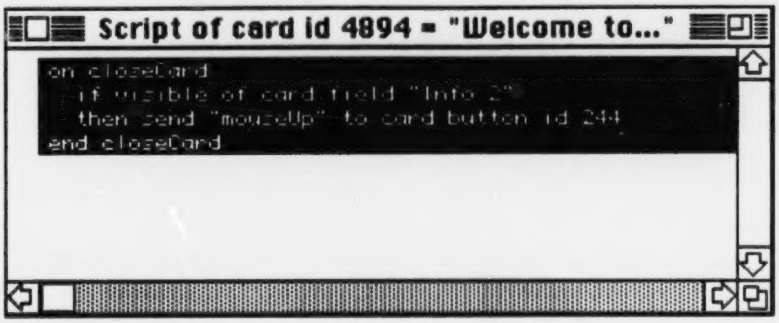
☐ Card Marked

☐ Don't Search Card

☒ Can't Delete Card

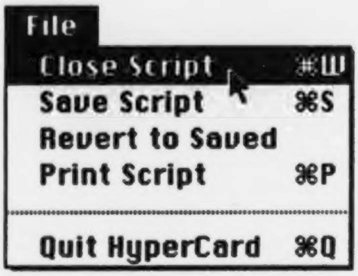
Script...
OK
Cancel

Clicking the **Script** button will cause the script of the card to appear. When the card script box appears, highlight the text of the CloseCard procedure so that white letters appear on a black background. Then press the Delete key on the keyboard to delete the text.

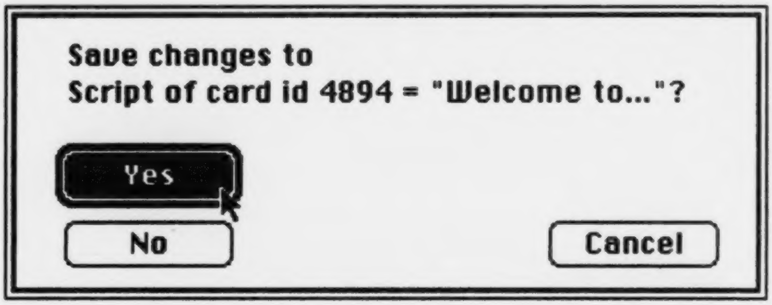

Script of card id 4894 = "Welcome to..."

```
on closeCard
  if visible of card field "Info 2"
  then send "mouseUp" to card button id 244
end closeCard
```

After deleting the CloseCard procedure of the card script, select the Close Script option under the File menu.


File
Close Script ⌘W
Save Script ⌘S
Revert to Saved
Print Script ⌘P
Quit HyperCard ⌘Q

When a dialog box appears asking you if you wish to save the changes to the script of the card, click the Yes button.

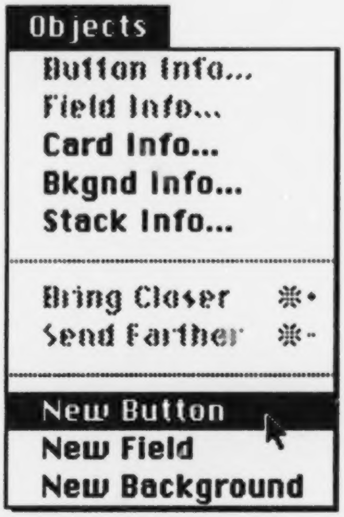


Save changes to
Script of card id 4894 = "Welcome to..."?

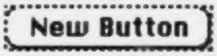
Yes
No
Cancel

Adding a Button to the Home Card

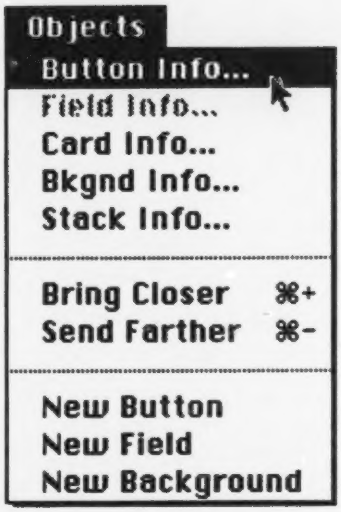
To add a button to the Home Card, select the **New Button** option under the **Objects** menu. *(Troubleshooting Tip: The* ***Objects*** *menu will not be visible if one of the Paint tools on the Tools palette is selected.)*


Objects
Button Info...
Field Info...
Card Info...
Bkgnd Info...
Stack Info...
Bring Closer ⌘+
Send Farther ⌘-
New Button
New Field
New Background

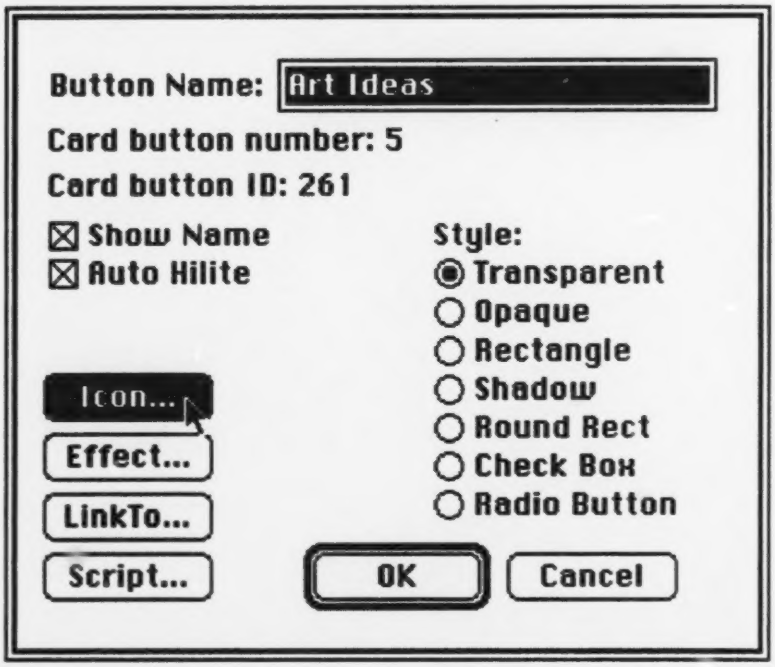
The new button that appears will have a swirling rectangle of dashed lines around it to indicate that it has been selected.



While the new button is still selected, select the **Button Info** option under the **Objects** menu. (If the button has become deselected, click once on the button while the Button tool on the Tools palette is chosen to reselect the button.)


Objects
Button Info...
Field Info...
Card Info...
Bkgnd Info...
Stack Info...
Bring Closer ⌘+
Send Farther ⌘-
New Button
New Field
New Background

The **Button Info** dialog box will appear. Enter "Art Ideas" as the button name, and make sure that the **Show Name** and **Auto Hilite** options are selected. Choose **Transparent** as the **Style** of the button. Then click the **Icon** button of the dialog box.

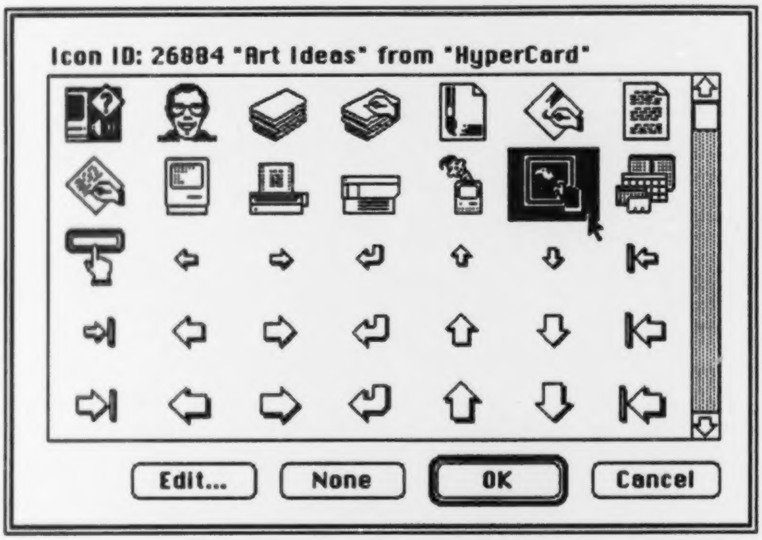


Button Name: Art Ideas
Card button number: 5
Card button ID: 261
☒ Show Name
☒ Auto Hilite

Style:
● Transparent
○ Opaque
○ Rectangle
○ Shadow
○ Round Rect
○ Check Box
○ Radio Button

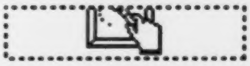
Icon...
Effect...
LinkTo...
Script...
OK
Cancel

Clicking the **Icon** button will produce the Icon Resources box. Click the Art Ideas icon (or any other icon you prefer) to select it. Then click OK.

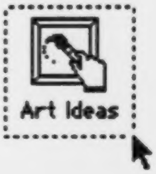

Icon ID: 26884 "Art Ideas" from "HyperCard"

Edit...
None
OK
Cancel

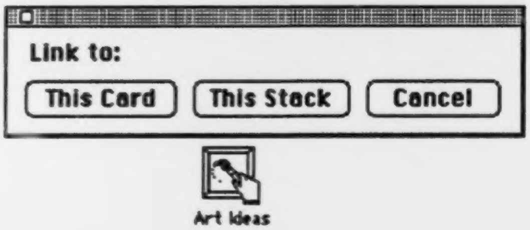
After the icon is selected, the entire icon will not be visible until the rectangle of the button is enlarged.



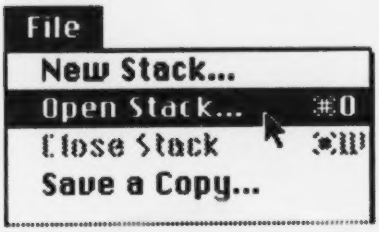
While the button is still selected, place the cursor on the lower right corner, and resize the button while holding the mouse button down.



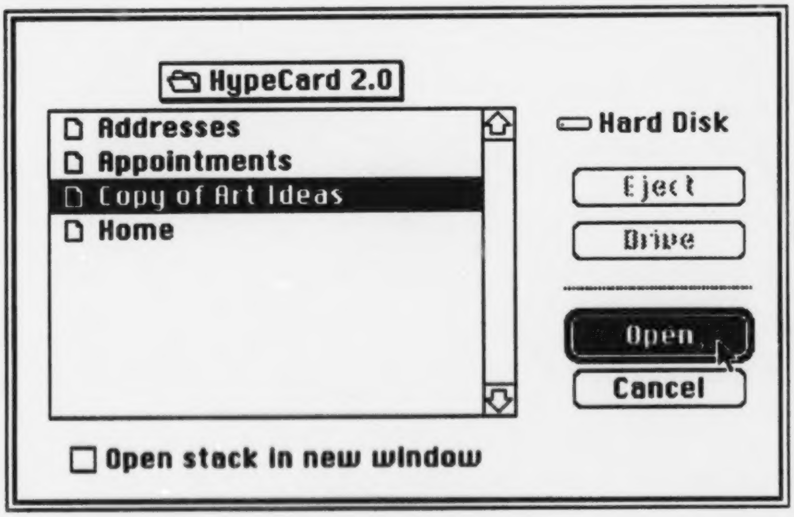
Then, while the button is still selected, choose the **Button Info** option on the **Objects** menu again. This time select the **LinkTo** option on the **Button Info** dialog box. The **LinkTo** dialog box will then appear. However, do not immediately select any of the choices shown.


Link to:
This Card
This Stack
Cancel
Art Ideas

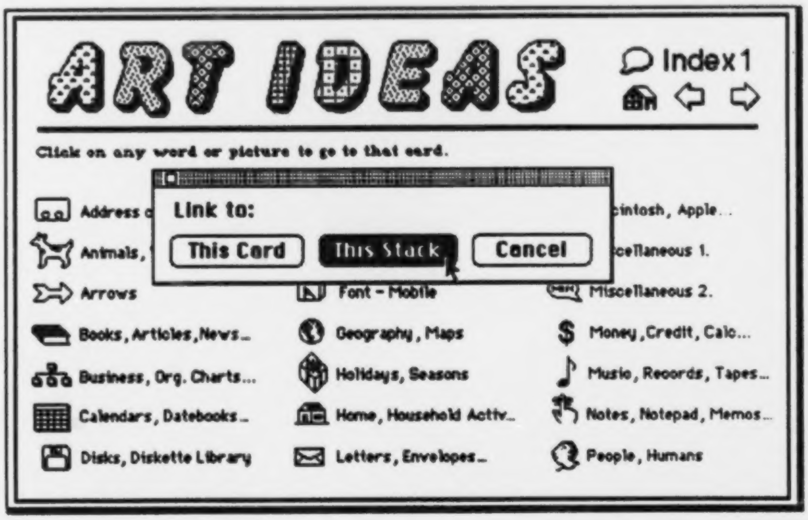
Instead, select the **Open Stack** option on the **File** menu at the top of the screen.


File
New Stack...
Open Stack... ⌘O
Close Stack ⌘W
Save a Copy...

When the choices of files appear, select the Copy of Art Ideas stack that you previously copied into the *HyperCard* 2.0 folder from the Stack Ideas folder in *HyperCard* 1.0. Then click the **OK** button.


HypeCard 2.0
Addresses
Appointments
Copy of Art Ideas
Home
Hard Disk
Eject
Drive
Open
Cancel
☐ Open stack in new window

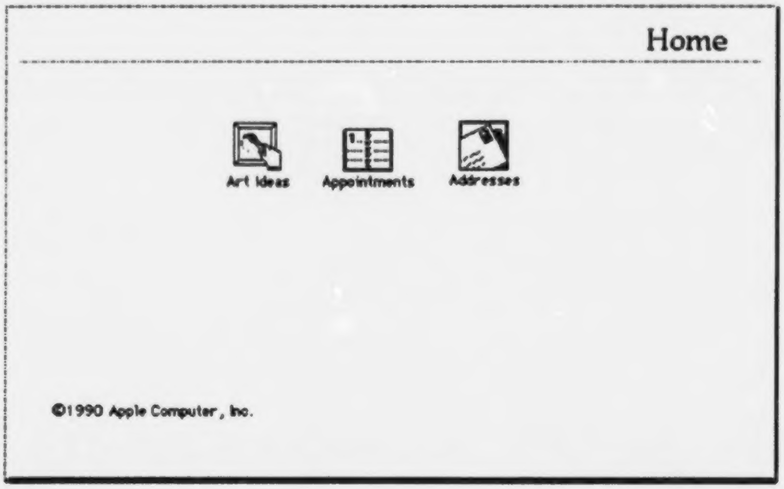
Once the Art Ideas stack appears, click the **This Stack** button on the **LinkTo** dialog box. This will link the Art Ideas button on the *HyperCard* 2.0 Home Card to the Art Ideas stack.


Click on any word or picture to go to that card.

ART IDEAS
Index 1
Link to:
This Card
This Stack
Cancel
Address
Animals,
...intosh, Apple...
...cellaneous 1.
Arrows
Font - Mobile
Miscellaneous 2.
Books, Articles, News...
Geography, Maps
Money, Credit, Calc...
Business, Org. Charts...
Holidays, Seasons
Music, Records, Tapes...
Calendars, Datebooks...
Home, Household Activ...
Notes, Notepad, Memos...
Disks, Diskette Library
Letters, Envelopes...
People, Humans

BEST COPY AVAILABLE

Click the Home button (the picture of the house in the upper right corner of the Art Ideas title card) to return to the Home Card. Once you are back at the Home Card, you can arrange the buttons in any way that you find efficient and aesthetically pleasing. The Art Ideas button on the Home Card will now be linked to the Art Ideas stack, just as it is in the *HyperCard* 1.0 Home Card.


Home
Art Ideas
Appointments
Addresses
©1990 Apple Computer, Inc.